

INTENTIONS TO SEEK MENTAL HEALTH SERVICES FOR DEPRESSION AMONG
COLLEGE WOMEN

A DISSERTATION
SUBMITTED TO THE GRADUATE SCHOOL
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
BY
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DR. MOLLY TSCHOPP - ADVISOR

BALL STATE UNIVERSITY

MUNCIE, INDIANA

JULY 2019

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Abstract

DISSERTATION: Intentions to Seek Mental Health Services for Depression Among College Women

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Approximately two-thirds of college student women who have symptoms of depression do not seek formal help through mental health services. Models of help seeking for young people have been developed and the Theory of Planned Behavior has been extensively used to understand health behaviors. The purpose of the present study was to examine the relationships between depression literacy, problem recognition, attitudes, perceived norms, perceived behavioral control, and intentions to seek help among college student women. A brief feedback intervention was included to determine if awareness of current depression symptoms severity impacted problem recognition. Five-hundred thirty-four college student women were surveyed, and data were analyzed using structural equation modeling and paired samples t-tests. Hypotheses that depression literacy was related to problem recognition and that feedback increased problem recognition were supported. The hypothesis that problem recognition was related to help-seeking intentions and attitudes was partially supported in that there was a direct positive relationship between problem recognition and intention to seek help, however this relationship was not mediated by attitudes. Other relationships between Theory of Planned Behavior variables were different than expected. Implications for theory, research, and practice are discussed.

Intentions to Seek Mental Health Services for Depression Among College Women

There is a discrepancy between the number of college students who endorse symptoms of depression and the number of students who receive mental health services (Eisenberg, Hunt, Speer, & Zivin, 2011; Lipson, Gaddis, Heinze, Beck, & Eisenberg, 2015; Sontag-Padilla et al., 2016). Given this discrepancy, it is important for mental health professionals to develop ways to increase the likelihood that college students with depression will seek out and receive mental health services. To develop interventions to increase help-seeking, it is first important to understand the psychosocial factors that influence the process of help-seeking for college students.

Online screening and feedback tools are widely available, though little is known about how they influence an individual's help-seeking process. The present study utilizes the Theory of Planned Behavior (TPB) to understand the relationship between an online screening and feedback intervention and depression literacy, problem recognition, and TPB predictors of intention to seek help for college women who have never participated in treatment.

Theoretical Framework: Theory of Planned Behavior

One model for predicting behavior and behavioral intention is TPB, developed and expanded by Fishbein and Ajzen (2010). Within TPB, the best predictor of actually performing a health behavior is a person's intention to perform the behavior (Fishbein & Ajzen, 2010). Fishbein and Ajzen (2010) described attitudes, social norms, and perceived behavioral control as the primary predictors of intention to perform a behavior. Moreover, distinct groups of people, with different background characteristics, likely have different experiences and beliefs that lead to different attitudes, perceived norms, and perceived behavioral control (Fishbein & Ajzen, 2010). TPB predictor variables may explain more or less variance in intention because of

differences in psychosocial and cultural characteristics of the population (Fishbein & Ajzen, 2010).

Several researchers have utilized TPB to understand psychological help-seeking intentions among college students and to develop interventions to increase help-seeking (Bohon, Cotter, Kravitz, Cello, & Fernandez y Garcia, 2016; Chen, Romero, & Karver, 2015; Demyan & Anderson, 2012). Attitudes and perceived behavioral control seem to be most significantly correlated with intention to seek help among college students (Bohon et al., 2016; Chen et al., 2015; Demyan & Anderson, 2012), though Fishbein and Ajzen (2010) would suggest it is important to always include all three predictor variables to best understand intention.

Some studies included the full model of TPB for help-seeking with college students, and others focused on one or two of the TPB predictor variables. In several studies, attitudes have been linked to intention to seek help (Lannin, Vogel, Brenner, & Tucker, 2015; Li, Dorstyn, & Denson, 2014; Thomas, Caputi, & Wilson, 2014). Other researchers explored social norms as factors which influence intention to seek help and have found mixed evidence (Lannin et al., 2015; Marsh & Wilcoxon, 2015). Perceived behavioral control has been studied the least in relation to intention to seek help, but it may be a critical component as March and Wilcoxon (2015) found that concerns about cost of treatment were related to less intention to seek help. Though these researchers examined the predictor variables separately, it seems each may contribute to help-seeking intentions of college students and may be important to include in future research.

Rickwood and Thomas (2012) described a clear conceptual framework to use when researching psychological help-seeking with young people. Fishbein and Ajzen (2010) recommended creating a specific definition of the studied behavior to ensure a match between

the language of questions measuring both predictor variables and intention to perform a target behavior. In their framework of help-seeking, Rickwood and Thomas (2012) described the following dimensions of help-seeking behavior as important to specify in research: stage in the process, timeframe, source of help, type of help, and concern being addressed. These are important specifics to be included in the present study.

Many researchers do not define the help-seeking behavior studied as specifically as prescribed by Fishbein and Ajzen (2010) or Rickwood and Thomas (2012). Fishbein and Ajzen (2010) described that researchers may have different reasons for defining behaviors more broadly than they recommend. Behaviors too narrowly defined lack generalizability, while those too generally defined leave room for error of interpretation or may not link well to predictability. In efforts to balance specificity and generalizability in the present study, the target behavior to be measured is *seeing a mental health professional for depression*. With a specified behavior of interest stated, the next step is to create an intervention to increase intention to perform the behavior.

Interventions to Increase Help-Seeking

Though Fishbein and Ajzen (2010) recommended using TPB research to develop targeted interventions to change intention and behaviors, they did not recommend a specific method or framework for developing interventions. Several interventions have been designed to increase intentions to seek-help for psychological difficulties among college students by changing attitudes, social norms, and perceived behavioral control (Demyan & Anderson, 2012; Hartong, 2012; Reavley, McCann, Cvetkovski, & Jorm, 2014). The interventions in these studies attempt to change the TPB predictor variables through educational or multimedia interventions, however they have had small impacts on the predictor variables and intentions to seek help (Demyan &

Anderson, 2012; Hartong, 2012; Reavley et al., 2014). Instead, targeting other exogenous psychosocial variables may be more effective (Fishbein & Ajzen, 2010).

Fishbein and Ajzen (2010) indicated background characteristics do not predict intention directly. They suggested these characteristics contribute to differences between the relative importance of attitudes, norms, and PBC in predicting intentions for distinct groups of people. Therefore, the background characteristics of participants may be the targets of interventions aimed to influence the predictor variables and subsequently intention to perform a behavior (Fishbein & Ajzen, 2010). Some background characteristics of interest related to college student help-seeking include gender, symptoms of depression, prior mental health diagnoses and treatment, mental health literacy, self-awareness of symptoms, and problem recognition.

Influential Factors Related to Help-Seeking

Gender

Gender constitutes an exogenous variable important to college students' intentions to seek help. There are significant differences between genders in attitudes, subjective norms, PBC, and intentions to seek help for mental health concerns (Ægisdottir & Gerstein, 2009). Many researchers have found gender is a significant predictor of intention to seek help, with women being more likely to intend to seek help (Demyan & Anderson, 2012; Thomas et al., 2014; Ægisdottir & Gerstein, 2009) and actually utilize psychotherapy (Sontag-Padilla et al., 2016; Vogel, Wade, Wester, Larson, & Hackler, 2007) more than men.

Symptoms of Depression

Endorsement of psychological symptoms and their severity have been included in some studies as exogenous variables that are part of the TPB model. However, there seems to be mixed evidence of a correlation between endorsement of psychological symptoms, their severity, and

intention to seek help from a mental health professional, even when mediated by TPB predictor variables (Kenny, Dooley, & Fitzgerald, 2016; Li et al., 2014; Ryan, Shochet, & Stallman, 2010; Sontag-Padilla et al., 2016). Having some type of mental health symptoms is a key characteristic of help-seeking because the first step of help-seeking is that a person *has symptoms* and becomes aware of and appraises those symptoms as problematic (Rickwood, Deane, Wilson, & Ciarrochi, 2005).

In a clinical setting, screeners are used to detect new cases where people endorse symptoms of depression so clinicians can recommend them for further treatment including medication or psychotherapy or to monitor symptoms of previously detected cases of depression (Kroenke, Spitzer, Williams, & Löwe, 2010). In the TPB framework, those with mental health difficulties may have different beliefs, attitudes, subjective norms, and PBC regarding help-seeking than those without symptoms because they are distinct subgroups.

Prior Diagnosis and Treatment

A person's prior experience with treatment for depression seems to influence help-seeking intentions (Gulliver, Griffiths, & Christensen, 2010). In the college student help-seeking literature, researchers have found those with prior counseling experience have more favorable attitudes toward help-seeking and greater intentions to seek help than those without such experiences (Bonabi et al., 2016; Ægisdottir & Gerstein, 2009). Those who have had previous treatment are also more likely to actually participate in psychotherapy than those who have not previously been in therapy (Bonabi et al., 2016). The known differences in help-seeking attitudes, perceived norms, perceived control, intentions, and behaviors for those with and without prior counseling experiences, warrants attention when using data from combined groups.

Mental Health Literacy

Mental health literacy is knowledge and beliefs about mental disorders including recognition, management, and prevention (Jorm, 2012). There has been mixed evidence of the impact of mental health literacy on seeking help for psychological disorders. Some researchers have found positive correlations between depression literacy and personal use of psychotherapy for those who endorse general symptoms of mental health problems (Bonabi et al., 2016). There is also evidence that accurate labeling of symptoms of depression in vignettes (a common proxy for mental health literacy) has been associated with participants recommending the person in the story seek help from a mental health professional rather than dealing with the problem on their own (Klineberg, Biddle, Donovan, & Gunnell, 2011; Wright, Jorm, Harris, & McGorry, 2007; Wright, Jorm, & Mackinnon, 2011). However, accuracy in labeling the symptoms of others does not seem to always influence personal help-seeking attitudes or behaviors for people with depression symptoms so other factors should also be explored (Beatie, Stewart, & Walker, 2016).

Self-Awareness of Symptoms

Rickwood et al. (2005) described a process of help-seeking which begins with awareness and appraisal of mental health problems. Even people with high mental health literacy, who endorse symptoms of depression, may have difficulty recognizing and labeling their *own* experiences as depression (Wang, Häusermann, Berrut, & Weiss, 2013). *Self*-identification and labeling of depression may make symptom recognition more personal and thus increase likelihood to seek help. It seems personal experiences with mental health problems, either for oneself or others, may be influential in help-seeking (Beatie et al., 2016). People with a higher level of personal familiarity with mental health difficulties (i.e. having a mental illness) are more

likely than those with lower levels of familiarity (i.e. seeing a portrayal of mental illness on television) to have positive attitudes towards seeking help and to participate in actual help-seeking behavior (Beatie et al., 2016).

Problem Recognition

Though symptom identification and labeling may be important, recognition of mental health symptoms as problematic is also an important second component to the beginning stage of the help-seeking process for young adults (Rickwood et al., 2005). Self-recognition (of mental health problems) is a construct which combines the appraisal of one's own mental health and mental health difficulties with the perceived need for help (Caplan & Buyske, 2015). Those with poor or fair self-rated mental health are more likely to seek help for depression than those who rate their mental health as good or excellent (Caplan & Buyske, 2015).

There is evidence to support the assertion that people who endorse depression symptoms may not always recognize these symptoms as problematic (Alvidrez & Azocar, 1999; Jang, Yoon, Chiriboga, Molinari, & Powers, 2015; Klineberg et al., 2011; Saunders, 1993; Yokopenic, Clark, & Aneshensel, 1983; Zuvekas & Fleishman, 2008). There may be a period of several years between the onset of symptoms and problem recognition, which may delay help-seeking behaviors (Thompson, Issakidis, & Hunt, 2008).

People who self-recognized depression as a problem are more likely to seek help and more likely to have a conversation with a medical provider about depression than those who do not (Alvidrez & Azocar, 1999; Bonabi et al., 2016; Chaudron et al., 2005). It may be beneficial to improve recognition and labeling of symptoms, and their problematic nature, to increase perceived need for treatment. One way to increase self-awareness and self-recognition is for health care professionals to provide diagnoses and treatment recommendations when they

recognize mental health symptoms in patients. Women receiving medical treatment in a public care clinic, who were told by a doctor they had depression, were about four times more likely than those who did not receive feedback to identify that they had a mental health difficulty and that their mental health difficulty was depression (Alvidrez & Azocar, 1999). Therefore, a person may endorse symptoms of depression, but if the person does not recognize the symptoms as depression *and that they are problematic*, the person may be less likely to seek help. An intervention that increases self-awareness, may subsequently increase problem recognition, and may increase intention to seek help through counseling for depression.

Feedback Interventions

Personalized feedback may increase awareness of symptoms and recognition of symptoms of depression as problematic (Batterham, Calear, Sunderland, Carragher, & Brewer, 2016; Geisner, Neighbors, & Larimer, 2006; Hom, Heaney, & Koopman, 2014). Indeed, those who have been told they have a problem are more likely to recognize a problem (Caplan & Buyske, 2015). Personalized feedback interventions as described in this study involve a person completing a screening questionnaire and afterward receiving information about their level of symptom severity. Personalized feedback interventions about symptoms of depression have been implemented with college students (and the general public) in efforts to reduce symptoms of depression, increase help-seeking, and to increase emotional awareness (Batterham et al., 2016; Geisner et al., 2006; Griffiths, Christensen, Jorm, Evans, & Groves, 2004; Hom et al., 2014). For example, Geisner et al. (2006) created a personalized feedback intervention for college students which was delivered by mail. Male participants in their study who received the feedback reported greater willingness to cope through the use of self-help strategies, unfortunately, no data

was gathered about professional service use or if it changed their perceptions of their symptoms (Geisner et al., 2006).

Other researchers have used personalized normative feedback in efforts to reduce symptoms of depression. Hom, Heaney, and Koopman (2014) created an online personalized feedback intervention for symptoms of depression specifically for college women. The students with moderately severe to severe levels of depression stated the feedback they received “increased their awareness about their own symptoms and motivated them to improve their mental health (i.e. by seeking treatment)” (Hom et al., 2014, p. 466). As the study was qualitative, the authors did not collect information based on measures and the purpose was not to influence or measure variables involved in TPB (Hom et al., 2014). However, the open-ended responses seem to indicate there was a change in self-awareness and an increased intention to seek help after the personalized normative feedback intervention.

While there is some support for using feedback interventions with college students, not all researchers have found evidence of their utility (Batterham et al., 2016; Gulliver et al., 2012). Batterham et al. (2016) conducted a large-scale population study of personalized feedback and found no correlation between a feedback intervention and intention to seek help for depression. Similarly, Gulliver et al., 2012 found no effect of any online intervention with elite athletes to change help-seeking attitudes and intentions related to depression. However, these researchers were not focused on college student females, a distinct group based on prior research. Moreover, those who were already receiving treatment were included along with those who were not using treatment and no information was reported on treatment specifically for diagnoses of interest (Batterham et al., 2016; Gulliver et al., 2012). These authors did not collect information about other influential personal factors related to help-seeking intentions including attitudes, perceived

norms, perceived behavioral control, and self-recognition of depression as problematic (Batterham et al., 2016; Gulliver et al., 2012).

Therefore, more information is needed to determine whether these conclusions about online feedback apply to female college students without previous diagnosis or treatment for depression. If feedback is still found to be unrelated to help-seeking intentions for this population, understanding the relationships between problem recognition, attitudes, perceived norms, perceived behavioral control and help-seeking intention may elucidate ways to increase intervention effectiveness.

Purpose of the Current Study

The studies by Hom et al. (2014) and Geisner et al. (2006) provide some support for researching personalized feedback for depression to increase self-awareness and problem recognition for depression symptoms that may lead to a change in intentions to seek help with college students. However, these studies did not use a standardized questionnaire to explicitly assess for participants' recognition of the symptoms as problematic. Further, these studies did not utilize a theoretical framework specifically based on previous literature of college student help-seeking or TPB. The purpose of this study is to increase knowledge of factors that influence college student women's help-seeking intentions to address depression using frameworks provided by Rickwood et al. (2005) and Fishbein and Ajzen's Theory of Planned Behavior (2010).

Hypotheses

Based on the preceding background research, the following hypotheses are proposed about the population of college women who endorse at least mild symptoms of depression:

Hypothesis 1: When taking into account prior counseling experiences, those with higher depression literacy will be more likely to accurately identify that they are experiencing a mental health problem (before a feedback intervention) than those with lower depression literacy (see Figure 1).

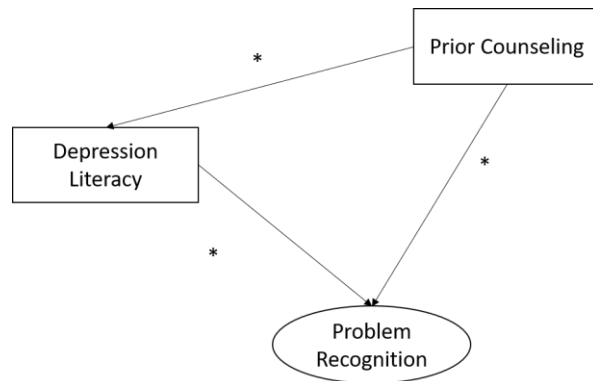


Figure 1. Hypothesized relationships between prior counseling, depression literacy, and problem recognition. * indicates a relationship hypothesized to be significant.

Hypothesis 2: After receiving personalized feedback about symptoms, participants will be more likely to endorse that they are experiencing a mental health problem than before receiving the feedback. To determine if problem recognition is increased after receiving feedback, a comparison of scores on a problem recognition scale will be compared before and after receiving feedback.

Hypothesis 3: Attitudes toward seeing a mental health professional for counseling will partially mediate the relationship between problem recognition and intention to seek counseling. Specifically, those who rate problem recognition higher will be more likely to endorse positive instrumental attitudes toward seeing a mental health professional for counseling and have higher intentions to seek counseling.

Hypothesis 4: Problem recognition will not be significantly correlated to norms or PBC. See Figure 2 for a model of the relationships described in Hypotheses 3 & 4.

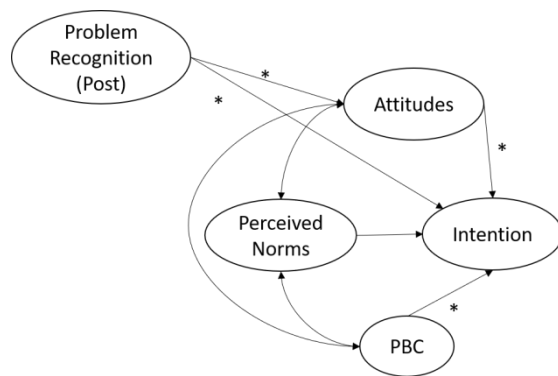


Figure 2. Hypothesized relationships between problem recognition and TPB latent constructs. * indicates a relationship hypothesized to be significant.

Significance of the proposed study

These hypotheses are important as they address a gap in the literature. Specifically, while awareness and problem recognition has been described as a necessary part of the help-seeking process (Rickwood, 2010), there have been no TPB studies with college students that incorporate self-awareness of symptoms and problem recognition as exogenous variables. Moreover, there have been no interventions in a TPB study of help-seeking which attempt to change self-awareness to promote help-seeking intention or behaviors. Finally, these hypotheses are specific to help-seeking for symptoms of depression and used tools specifically to assess for depression symptoms and help-seeking for depression, which may be different than help-seeking in general. Having the target behavior specifically defined may rule out other reasons for relationships, or lack thereof, between the identified variables.

Methods

Instruments

Demographic questionnaire. A demographic questionnaire was created to obtain basic background information about participants along with information relevant to the inclusion

criteria for the study. Participants were asked to identify their gender, sexual orientation, race, ethnicity, age, relationship status, and year in school.

Depression literacy questionnaire. Mental health literacy, specifically for depression, has been measured in prior studies using a 22-item true/false scale titled the Depression Literacy Questionnaire (D-Lit; Griffiths, Christensen, Jorm, Evans, & Groves, 2004; Gulliver et al., 2012). Items in this scale are either accurate statements about depression symptoms or misconceptions about depression and its effects. Higher scores on the scale reflect greater depression literacy. Internal consistency of the scale is moderate (Cronbach's $\alpha = .70$) as was test-retest reliability ($r = .71$) for a sample of elite athletes (Gulliver et al., 2012). Because depression is the mental health concern of focus for this study, this measure was chosen instead of a more general assessment of mental health literacy. The creators of this measure did not report data related to the validity of this measure. For the current study, the D-Lit had acceptable internal consistency reliability (Cronbach's $\alpha = .68$)

PHQ-8. The Patient Health Questionnaire – 8 is an eight-item questionnaire developed to screen for symptoms of depression based on the DSM-IV diagnostic criteria for depression (Kroenke et al., 2009). The PHQ-8 is a revision of the PHQ-9 (Kroenke, Spitzer, & Williams, 2001) that deletes item 9 (Thoughts that you would be better off dead or of hurting yourself in some way.) This is done when researchers are unable to respond immediately or effectively when someone endorses the item (Kroenke & Spitzer, 2002; Kroenke et al., 2009). In the current study, all participants were encouraged at the end of the study to seek immediate help from a professional if they were thinking about hurting themselves.

The PHQ-8 consists of Likert scale items that are scored from 0 (not at all) to 3 (nearly every day). The creators of this scale established criterion validity by comparing scores on the

PHQ-8 with clinical interviews of participants (Kroenke et al., 2009). They found it had high sensitivity (ability to detect changes as time progresses) and specificity (ability to differentiate those with depression from those without depression) for level of depression as it accurately identified those who were diagnosed with depression through clinical interviews (Kroenke & Spitzer, 2002; Kroenke et al., 2009). This scale has been found to have high internal consistency reliability (Cronbach's alpha .82; Pressler et al., 2011). Convergent validity was established by examining associations between scores on the PHQ-8 and worsening scores on scales of functioning on the SF-20 (a measure of medical outcomes for general health; (Kroenke et al., 2001). The correlation between the PHQ-8 and PHQ-9 is high ($r = .998$; Corson, Gerrity, & Dobscha, 2004) and the PHQ-9 has been used in many studies of help-seeking as a screening tool and predictor variable (Bohon et al., 2016; Hom et al., 2014; King et al., 2015; Schomerus, Matschinger, & Angermeyer, 2009).

Problem recognition questionnaire. As self-awareness and problem recognition are closely related, six items were used to measure this combined construct called problem recognition. The first item is adapted from Amador et al.'s, (1993) assessment for insight in psychosis. It asks generally whether someone believes they are experiencing a mental disorder. The next four items are taken from Sturman and Sproule's (2003) Mood Disorders Insight Scale. These items ask participants about their general mental health, and their attributions of their symptoms to a mental health disorder. The final question was developed for this study to specifically assess for the problem perception of depression, rather than a more general mental health difficulty, "I believe the level of depression I am experiencing is problematic." These questions were piloted (see Appendix Z) to determine the reliability of these questions as a scale to measure the combined self-recognition and self-awareness construct. The Problem

Recognition Questionnaire had high internal consistency in both the pilot ($\alpha=.85$; see Appendix Z) and main ($\alpha=.81$ and $.82$) study samples.

Manipulation check. One item served as a manipulation check to determine if participants were attentive to the feedback they received. Specifically, they were asked to indicate the level of depression symptom severity provided to them in the feedback.

Previous treatment and diagnosis. As those with prior experiences with mental health treatment have been found to have different attitudes and intentions to participate in psychotherapy (Demyan & Anderson, 2012; Ægisdottir & Gerstein, 2009), several items assess prior mental health diagnoses and treatment. The items address the following domains for mental health issues in general and for depression specifically: prior help-seeking behaviors, prior mental health diagnoses, and prior engagement in treatment. These items were used as to compare groups on help-seeking of various types.

TPB measures. In their study, Bohon et al. (2016) created the AASMHS, MHSA, LC, PBCI, SN, and ISMHS to measure TPB constructs. Bohon et al., (2016) conducted three studies in their construction of these scales and information from the three studies are included in the sections below.

Attitudes about seeking mental health services (AASMHS). The AASMHS (Bohon et al., 2016) is a 22-item instrument designed to measure attitudes, social norms, perceived behavioral control, and intentions toward seeking psychological help. Items are Likert scales with anchors of 1 (Agree 0%) to 5 (Agree 100%). This instrument was specifically designed using the methods recommended by Fishbein and Ajzen for Theory of Planned Behavior studies. The authors of the AASMHS established convergent validity by comparing it to the measures developed by Mo and Mak (2009) for the same constructs in a study of help-seeking. The

correlations between responses on the AASMHS subscales and the AATD scale (adapted from the ATSPPH-SF, a well-established measure of attitudes toward help-seeking) showed moderate correlations ranging from .44 to .56 suggesting they measure related, but different constructs.

This may be because items on the ATSPPH-SF cover several domains of TPB including intentions, for example the item, “I might want to have psychological counseling in the future.”

The AASMHS contains four subscales: ATT (attitudes), SN (social norms), PBC (perceived behavioral control), and INT (intentions). The authors established internal consistency reliability by piloting and revising the measure. The final reported Cronbach’s alpha reliabilities ranged from .69 to .79 (Bohon et al., 2016) indicating moderately high internal consistency reliability for each subscale. The convergent validity of each subscale is described below as it relates to other scales used to measure the constructs or similar constructs. In this study, the alpha reliabilities ranged from fair to good (.70 to .83).

Mental health services attitudes (MHSA). This scale was developed by Bohon et al. (2016) to measure attitudes related to a broader range of mental health services. In their studies, they found this scale to have adequate internal consistency reliability (In study 1, $\alpha=.84$; in study 3, $\alpha=.85$). They also found the scale to demonstrate convergent validity as it was moderately correlated to the AASMHS-ATT subscale (In study 1, $\alpha=.57$; in study 3, $\alpha=.65$), and Attitudes About Talking to a Doctor (AATD; a reworded version of ATSPPH; in study 3, $\alpha=.46$). In the pilot study (see Appendix Z), MHSA had one item (number 18) which was negatively correlated to the rest of the items and so it was removed from both the pilot and the main study. With the item removed, MHSA had high internal consistency in the pilot ($\alpha=.86$) study (see Appendix Z). Because many of the items in this scale refer to types of coping with depression with other coping strategies (i.e. medications, exercise, support groups) reliability analysis of pilot data was

run to see if removing those items resulted in an acceptable scale of help-seeking by seeing a mental health profession. Items 1, 2, 3, 5, 7, 8, 10, 11, 13, 15, and 17 were retained and resulting internal consistency reliability was acceptable ($\alpha=.77$).

Attitudes toward seeking professional psychological help – short form. This scale developed by Fischer and Farina (1995) was found to have a reliability coefficient of .84. with a biserial correlation ($r = .39$) between scale scores and whether someone sought psychological help. In the study by Bohon et al. (2016), as stated above, this scale was moderately correlated with the ASSMHS-ATT subscale and the MHSA. This scale is frequently used in help-seeking literature with good psychometric properties consistently reported (Elhai, Schweinle, and Anderson, 2008; Vogel, Wester, Wei, and Boysen, 2005). In this study, ATSPPH had items 3 and 7 removed based on their poor fit in the studies by Bohon et al., (2016) and had acceptable internal consistency in the pilot study ($n=75$, $\alpha=.75$; see Appendix Z). Because item 4 specifically addresses seeing a doctor for physical problems, it was excluded from this study. Internal consistency reliability with items above removed was acceptable ($\alpha=.74$).

Life circumstances (LC). Also developed by Bohon et al. (2016) this scale measures potential barriers to help-seeking and intended to correlate with the construct of PBC. This scale incorporates barriers to help-seeking in a variety of domains such as medications, group therapy, exercise, and therapy. It covers barriers related to transportation, scheduling, scheduling conflicts, stress, time, fatigue, cost, and access. The authors found internal consistency reliabilities to be high (In study 1, $\alpha=.92$; in study 3, $\alpha=.92$). Similarly, they found moderate correlations between this scale and the AASMHS-PBC (in study 1, $\alpha=.48$; in study 3, $\alpha=.49$). They also found moderate correlations between this scale and the PBC specific measure created for study 2 (in study 3 they were found to be correlated, $\alpha=.69$). In the pilot study for the current

research, the LC had high internal consistency ($\alpha=.91$; see Appendix Z). Because many of the items on the LC scale were related to help-seeking behaviors other than therapy, many items were removed. Items 3, 7, 11, 15, 19, 23, 27, 33 were retained as they were related to the behavior of interest and resulting internal consistency reliability was acceptable in the current study ($\alpha=.78$).

Social norms inventory (SN). This 22-item inventory measures perceived social support for help-seeking using 11 positively worded and 11 negatively worded statements. Developed for study 2 by Bohon et al. (2016) they found this scale to have high internal consistency reliability (in study 2, $\alpha=.89$; in study 3, $\alpha=.90$). They also found it to be moderately correlated with the AASMHS-SN subscale in study 3 ($\alpha=.67$), but only slightly correlated in study 2 ($\alpha=.39$). The SN scale had high internal consistency in the current study ($\alpha=.92$).

Perceived behavioral control inventory (PBCI). This is a 12-item inventory developed by Bohon et al. (2016) in their second study to measure perceptions of ease or difficulty in obtaining mental health services. There are 6 each of positively worded and negatively worded statements. Bohon et al. (2016) found this scale to have adequate internal consistency reliability (in study 2, $\alpha=.75$; in study 3, $\alpha=.83$). It's correlation to the AASMHS-PBC was $\alpha=.58$ in study 2 and $\alpha=.55$ in study 3. It's relationship to the LC was described above. The PBCI had high internal consistency in this study ($\alpha=.85$).

Intention to seek mental health services (ISMHS). This is the final inventory developed by Bohon et al. (2016) created to measure the construct of intention to seek help for depression with 14 statements, 7 each of positively and negatively worded. This measure had high internal consistency reliability (in study 2, $\alpha=.95$; in study 3, $\alpha=.95$). It was also moderately

to highly correlated with the AASMHS-INT subscale (in study 2, $\alpha=.59$; in study 3, $\alpha=.77$). In this study, ISMHS had high internal consistency ($\alpha=.94$).

Data Analysis for TPB variables: Structural Equation Modeling

According to Finch and French (2015), Structural Equation Modeling (SEM) is a statistical method for modeling relationships among latent and observed variables (measurement model) and among different latent variables (structural model). SEM should be used with both sufficient theoretical and empirical support for the relationships being modeled and researchers should have hypotheses described prior to analyses. Using SEM can help understand complex mediating and moderating relationships among variables, however because of the complexity of the analyses a large sample size is typically required. Moreover, because latent constructs are built upon observed indicators, a greater number of observed indicators is ideal for SEM constructs (Finch & French, 2015). As the structural model is impacted by the quality of the measurement model, a Confirmatory Factor Analysis was used for each of the constructs to test for the quality of the measurement model before conducting analyses of the structural models (Finch & French, 2015).

A model with good fit is parsimonious and has known distributional characteristics. Several tests of goodness of fit were utilized in order to demonstrate the adequacy of the SEM. A Chi-Square goodness of fit test was used to test exact model fit with a value below 2 as ideal, but below 5 as an acceptable model of fit, however, in practice this statistic often leads to a rejection of the null hypothesis if the sample is sufficiently large or if indicators deviate from multivariate normal distribution (Finch & French, 2015). In order to accommodate some deviation from normal distribution of the sample and large sample size, Standardized Root Mean Square Residual (SRMR) and Root Mean Square Error of Approximation (RMSEA) were used to

measure model fit. SRMR has a cutoff of $<.08$ indicating an adequate model fit. The RMSEA reduces error by adding a penalty for model complexity and if $RMSEA < .05$, the model is a good fit for the data, with values $.05$ to $.08$ indicating acceptable model fit (Finch & French, 2015). Finally, comparative fit index (CFI) and Tucker-Lewis index (TLI) were also used to test model fit. Values above $.90$ indicating acceptable model fit with higher values signaling better fit (Finch & French, 2015).

Because SEM is used to evaluate the fit of a model based on theory which includes latent constructs, it is an appropriate analysis for a study of TPB which includes paths from exogenous variables to the constructs of attitudes, social norms, PBC, and intentions. There is sufficient theoretical and research support for these relationships (Bohon et al., 2016; Hartong, 2012; Mo & Mak, 2009; Rickwood & Thomas, 2012). SEM has been used in this way in other studies of help-seeking using TPB (Bohon et al., 2016; Hartong, 2012; Mo & Mak, 2009). SEM was used in the present study to better understand the relationships between problem recognition related to depression literacy, depression symptoms, TPB constructs, and intentions to seek help for depression. Moreover, a between groups SEM compared model fit and mean scores of latent variables within SEM (Finch & French, 2015) between those who have had prior counseling and those who have not. This is important given known groups differences in TPB variables based on prior counseling experiences.

SEM is a strong statistical tool, and it can be important to compare theoretical models to prevent prematurely accepting one model as the best fit for the data (Finch & French, 2015). For this study models with and without a mediated relationship from problem recognition to intention through attitudes were compared to determine which was a better fit for the data.

Procedures

Recruitment. Participants were recruited from four medium-sized midwestern universities via campus wide emails (at one university), emails to undergraduate departments (at three universities), a research pool (from one department at one university), and to open Facebook groups at all four universities. All recruitment requests included information about the study, a link to an informed consent page for the study, which was administered through Qualtrics, and the contact information of the principle investigator. Participant names and contact information were collected for consent through a separate Qualtrics survey and when they entered their name and clicked to consent to the study, they were automatically redirected to the study surveys. This process kept their names separate from their responses to the survey questionnaires. Because of the way this survey was administered, people were not able to access the main study questionnaires before seeing the informed consent information.

After completing the main study questionnaires, participants were redirected to a third separate Qualtrics page. On this page, those who chose to opt in were eligible for an opportunity to receive one of forty-five \$10 gift cards as incentive for participating in the study. Students in one department at one university were also able to receive one hour of research credit as an additional incentive to complete the online survey. Students from this department had the opportunity to receive credit and a gift card if they entered their name and email address, and instructor's name and email address. The contact information was collected through a separate Qualtrics survey which did not link their responses to their responses from the main study.

Pre-feedback questionnaire administration. The overlapping nature of many of the items on these questionnaires may create order effects. To mitigate this the order of these measures was predetermined to be consistent because of the content of the scales. If participants

were presented with the PHQ-8 before the D-Lit, they may be more likely to recognize symptoms of depression when asked questions related to depression literacy.

Based on the above rationale, study questionnaires were presented in an online format in the following specified sequence. All participants first completed an item asking about their identified sex to determine if they met inclusion criteria. They were then presented with the D-Lit to assess their knowledge of depression. They were then presented with the Problem Recognition Questionnaire to determine their pre-intervention beliefs about whether their mental health is problematic. Participants then completed the PHQ-8.

Feedback Intervention. Immediately after the completion of the PHQ-8, participants were presented with a screen with a brief text paragraph describing the severity level of their symptoms of depression based on the recommended cutoffs for the PHQ-8 described by Kroenke et al. (2009). The following text was provided, containing only the level of severity that fit with the participant's response:

"Your answers to the previous questionnaire suggest you fall in to the

Minimal/Mild/Moderate/Moderately Severe/Severe range of severity for depression.

This information is not meant to replace an assessment from a mental health professional or medical doctor, but may be useful in your decision to pursue mental health or medical services."

As a manipulation check, they were asked on the next screen to select the severity of their symptoms based on the presented feedback. Participants then completed the Problem Recognition Questionnaire a second time.

Remaining questionnaires. Following the self-recognition items, all participants were presented with the AASMHS, MHSA, ATPPHS, LC, PBCI, SN, ISMHS scales to measure TPB

constructs, and a questionnaire about previous mental health treatments (Appendix Q). They also completed a demographic questionnaire at this time. After completing the questionnaires, participants were presented with a debriefing statement that included more information about the study and crisis line contact and counseling resources information. Instructions were provided on submitting their contact information for the opportunity to receive a gift card and receive research credit for those students in eligible courses.

Participants

Participants were recruited from four medium sized midwestern universities. A CONSORT flow chart of participants can be found in Figure 3. A total of 1401 people completed the informed consent document and were directed to the main study. Based on the different opportunities to receive incentives and the different language in informed consent documents for different universities, surveys to students from one department at one university had an independent Qualtrics link, surveys sent to students outside the specified department had a second link, and surveys sent to students from all other universities shared the same link. Based on the way surveys were distributed 1112 were from one university and 289 were from the other three universities.

Prior research of TPB and help-seeking for college students suggests men and women are distinct groups in regard to help-seeking, and as such 31 people were excluded because they did not identify as women. Of those remaining, 334 were excluded because they did not complete demographic questionnaires and 12 were excluded because they did not complete entire measures for one or more TPB constructs. As undergraduate student women were the population of interest, 103 people were excluded because they were not undergraduate students. Moreover, because the intervention in this study was intended to increase help-seeking for those with

symptoms of depression, only those who score at least 5 on the PHQ-8 were included in the study, as a score of 5 or more indicates at least mild severity of depression symptoms (Kroenke et al., 2009). Finally, 146 people currently in counseling/therapy were excluded from the main analyses, as those currently in counseling constitute a group already receiving the intended services and a distinct group from those who are not. In sum, 534 participants were included for the final analyses.

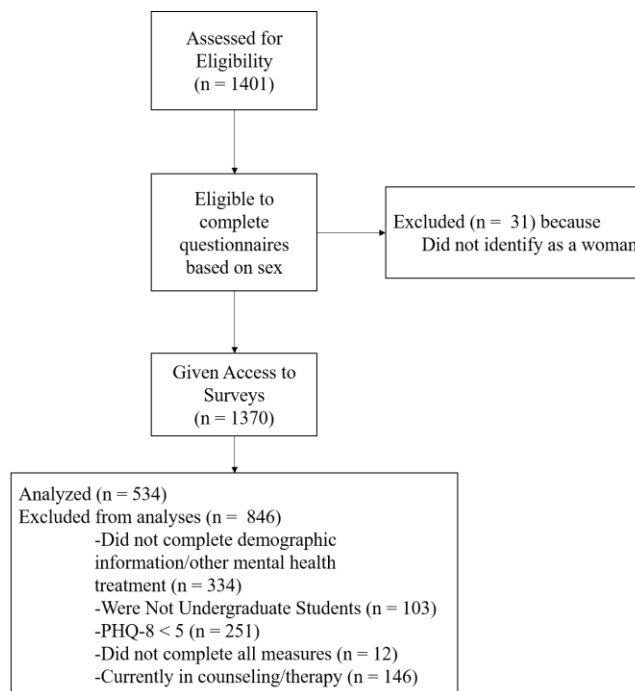


Figure 3. Flow of participants through stages of this study.

Demographic information. Participant demographic information is found in Table 1 below. Data was gathered for those who would not be included in final analyses in order to rule out significant differences in demographic characteristics between those currently in counseling and those not currently in counseling. Most participants in the final analyses identified as Caucasian (82%), single (47%) or dating (41%), and heterosexual (75%). There were slightly more freshman participants than those from other years in school. Between-group analyses based

on demographic characteristics were not conducted because there were not enough participants from varying racial, sexual orientation, or relationship statuses to compare the groups.

Table 1. *Main Study Sample Demographics*

	Full Sample		No Counseling		Previous Counseling	
	n	(%)	n	(%)	n	(%)
	534	100	281	53	253	47
<u>Race/Ethnicity</u>						
Asian	9	2	6	2	3	1
Black/African American	33	6	25	9	8	3
Caucasian	440	82	225	80	215	85
Hispanic/Latina	28	5	16	6	12	5
Middle Eastern	1	0	0	0	1	0
Multiracial/Biracial	23	4	9	3	14	6
<u>Year in School</u>						
Freshman	162	30	82	29	80	32
Sophomore	134	25	71	25	63	25
Junior	125	23	69	25	56	22
Senior	113	21	59	21	54	21
<u>Marital Status</u>						
Cohabiting	24	4	10	4	14	6
Dating	218	41	118	42	100	40
Divorced	2	0	0	0	2	1
Married	9	2	3	1	6	2
Partnered	31	6	16	6	15	6
Single	250	47	134	48	116	46
<u>Sexual Orientation</u>						
Bisexual	69	13	33	12	36	14
Gay	0	0	0	0	0	0
Heterosexual	403	75	224	80	179	71
Lesbian	19	4	7	2	12	5
Other (asexual, demisexual, pansexual, demisexual, pansexual, other)	34	6	10	4	24	9
Prefer not to say	9	2	7	2	2	1

Results

Data Preparation and Preliminary Analyses

Missing values. A missing case analysis revealed that no participants answered fewer than 90% of items on a scale, nor was any one item answered by fewer than 90% of participants. Two-way mean imputation was used to compute missing data for participants who were missing data (Sijtsma & van der Ark, 2003; Van Ginkel et al., 2007). Two-way imputation has been shown to result in only small bias with samples that have low amounts of missing data (Van Ginkel et al., 2007).

Multivariate normality and outliers. One assumption of the Maximum Likelihood method of factor extraction is that criteria for multivariate normality is met (Finch & French, 2015). The *mardia()* function in R was used to test for multivariate normality of the latent constructs composed of combined items from the scales used by Bohon et al. (2016). Multivariate normality tests of the indicators for each total latent construct were conducted. Based on the results, none of the latent constructs measured with all indicators were multivariate normal (see Table 7). It is possible that outliers contributed to skew and kurtosis, and while outliers could represent errors in data entry or calculation, they may be extreme cases with no indication of problematic data gathering methods (Aguinis, Gottfredson, & Joo, 2013). Rather than remove outlying cases that may exclude legitimate extreme cases, issues of non-normality were addressed by using parceling, bootstrapping methods, and rotated covariances matrices (Bollen & Stine, 1993; Finch & French, 2015; Matsunaga, 2008).

Means, standard deviations, reliability, and correlations. Bohon et al. (2016) used items from all scales related to a latent construct as indicators for the latent construct. As described earlier, some items were removed from the MHSA, LC, and ATPPHS scales due to

inconsistency with the behavior of interest. As described below, more items were removed from the MHSA, ATPPHS, and AASMHS-ATT scales due to poor fit with a one factor model of the latent construct of attitudes. Means and standard deviations of all scales, including the modified scales for this study, are presented for the total sample, the no prior counseling sample, and the prior counseling sample in Table 2.

Table 2. Scale Means and Standard Deviations

	No Counseling (n=281)		Previous Counseling (n=253)		Full Sample (n=534)	
	M	SD	M	SD	M	SD
AASMHS-ATT Full	31.41	5.50	32.7	5.63	32.02	5.59
AASMHS- ATT Revised	22.63	4.64	23.73	4.77	23.15	4.73
MHSA Full	82.21	15.64	87.97	16.14	84.94	16.12
MHSA Revised	36.93	7.90	40.03	8.20	38.4	8.19
ATSPPHS Full	27.81	6.75	31.26	7.24	29.45	7.19
ATSPPHS Revised	15.35	4.55	17.6	4.79	16.41	4.8
AASMHS-PBC	10.9	3.07	11.64	2.94	11.25	3.03
LC Full	112.61	22.71	115.11	24.07	113.8	23.38
LC Revised	24.02	6.09	24.58	7.03	24.28	6.55
PBCI	40.17	8.04	42.53	8.38	41.28	8.28
AASMHS-SN	23.71	5.16	25.37	5.33	24.5	5.3
SN	83.76	15.55	88.17	14.93	85.85	15.4
AASMHS-INT	13.16	4.08	14.9	3.85	13.98	4.06
ISMHS	48.68	12.49	53.56	12.41	50.99	12.67
DLitMean	14.2	2.97	15.06	3.03	14.6	3.03
Prob-Rec Pre-Feedback	12.56	3.24	14.12	3.11	13.3	3.27
Prob-Rec Post-Feedback	12.85	3.25	14.3	3.06	13.54	3.24
PHQ-8	11.37	5.22	12.42	5.29	11.87	5.27

Correlations and Chronbach's alpha reliability statistics are presented in Table 3. As can be seen in Table 3, the revised scales (which had items removed to fit the theoretical constructs and based on results from CFAs) were highly correlated to the original versions with correlations of .90 or above. For structural equation modelling, the correlations between indicators of latent constructs should be moderately correlated to find a balance between similar, but unique aspects of a latent variable (Tabachnick & Fidell, 2007).

Table 3. Alpha reliability coefficients and intercorrelations for scales

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	AASMHS-ATT Full	0.81																	
2	AASMHS- ATT Revised	0.97*	0.79																
3	MHSA Full	0.77*	0.77*	0.89															
4	MHSA Revised	0.74*	0.74*	0.96*	0.83														
5	ATSPPHS Full	0.50*	0.52*	0.56*	0.58*	0.74													
6	ATSPPHS Revised	0.55*	0.58*	0.59*	0.61*	0.93*	0.72												
7	AASMHS-PBC	0.63*	0.65*	0.59*	0.59*	0.55*	0.61*	0.77											
8	LC Full	0.41*	0.41*	0.45*	0.46*	0.44*	0.41*	0.52*	0.91										
9	LC Revised	0.41*	0.41*	0.47*	0.48*	0.41*	0.40*	0.5*	0.90*	0.78									
10	PBCI	0.55*	0.56*	0.55*	0.55*	0.50*	0.51*	0.61*	0.70*	0.67*	0.85								
11	AASMHS-SN	0.56*	0.57*	0.56*	0.57*	0.59*	0.62*	0.56*	0.46*	0.43*	0.55*	0.7							
12	SN	0.61*	0.58*	0.60*	0.60*	0.55*	0.59*	0.61*	0.53*	0.49*	0.60*	0.79*	0.92						
13	AASMHS-INT	0.73*	0.75*	0.71*	0.71*	0.44*	0.49*	0.61*	0.40*	0.41*	0.51*	0.50*	0.49*	0.83					
14	ISMHS	0.69*	0.69*	0.77*	0.77*	0.52*	0.55*	0.65*	0.49*	0.51*	0.58*	0.51*	0.55*	0.78*	0.94				
15	DLitMean	0.18*	0.14*	0.14*	0.14*	0.16*	0.16*	0.09^^	0.03	0.03	0.08	0.15*	0.18*	0.11^^	0.1^^	0.68			
16	Problem Recognition - Pre-Feedback	-0.02	-0.03	-0.01	0	-0.04	-0.04	0.1^	0.17*	0.14*	-0.17*	-0.12**	-0.12*	0.08	-0.05	0.17*	0.81		
17	Problem Recognition - Post-Feedback	0.01	0.01	0	0	-0.04	-0.04	0.11^^	0.18*	-0.15*	-0.16*	-0.1^^	-0.1^^	0.08	-0.03	0.16*	0.93*	0.82	
18	PHQ8	-0.23*	-0.24*	-0.22*	-0.23*	-0.26*	-0.27*	-0.3*	0.34*	-0.31*	-0.34*	-0.25*	-0.27*	-0.12*	-0.21*	0.06	0.6*	0.59*	.84

Note. *indicates significant at $p < .001$, ** indicates significant at $p < .005$, ^ indicates significant at $p < .01$, ^^ indicates significant at $p < .05$ Chronbach's alpha reliabilities are listed along the diagonal.

Main Analyses

Results of manipulation check. To test whether participants were attentive to the intervention, a manipulation check was conducted following the presentation of PHQ-8 result feedback. There was 93.2% agreement between the presented results of the PHQ-8 and participant's answer to the question: "The feedback you received indicated you had what level of depression symptom severity?" Participants were not excluded from the study because of their responses to the manipulation check.

Depression literacy and pre-feedback problem recognition. A Multiple Indicators Multiple Causes (MIMIC) model was used to understand the relationship between D-Lit score and Pre-PHQ-8 feedback Problem Recognition, taking into account prior counseling as an exogenous indicator variable. The parceled model for problem recognition was used for this analysis (see information about parceling below). All fit indices showed good model fit (see Table 4). There were significant, positive regression relationships between all variables (see Table 5 and Figure 4). Problem recognition score increased with increases in Depression Literacy score and was higher for the prior counseling group than the no prior counseling group.

Table 4. *Depression literacy, prior counseling, and pre-feedback problem recognition MIMIC model*

Model Description	χ^2	χ^2 p-value (Bollen-Stine Bootstrap)	CFI	TLI	RMSEA (CI)	SRMR
Full Model	1.488	0.809	1	1	0 (0-.039)	0.009

Table 5. *Between groups unmediated model bootstrapped ML estimates: Unstandardized parameter estimates, standard errors, and significances levels*

Latent Variable Path	Unstandardized Estimate (β)	S.E.
PROBREC <- DLIT	.021**	.006
PROBREC <- PRIORCOUNS	.202*	.040
DLIT <- PRIORCOUNS	.864**	.260

Note. S.E. = Approximate Standard Error; DLIT = Depression Literacy; PRIORCOUNS = Prior Participation in Counseling; PROBREC = post feedback problem recognition. * $p < .001$, ** $p < .005$, ^ $p < .01$, ^^ $p < .05$

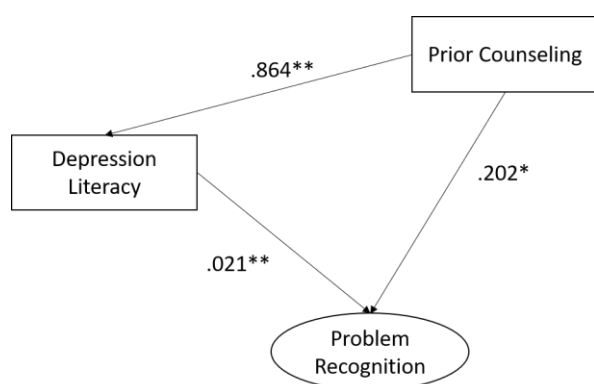


Figure 4. MIMIC model of relationships between prior counseling, depression literacy, and problem recognition. *indicates significant at $p < .001$, ** indicates significant at $p < .005$, ^ indicates significant at $p < .01$, ^^ indicates significant at $p < .05$. Prior Counseling in Parentheses.

Impact of feedback. It was also hypothesized that after receiving feedback, participants would be more likely to endorse that the level of depression they are experiencing is problematic. A paired sample t-test was conducted to determine whether participants' Problem Recognition Questionnaire scores were significantly different before and after being presented with feedback about depression severity level. For the full sample including those currently in counseling, there was a significant difference in the scores for problem recognition prior to PHQ-8 feedback, ($M = 13.82$, $SD = 3.24$) and after PHQ-8 feedback ($M = 13.99$, $SD = 3.21$); $t(679) = 3.84$, ($p < .001$), indicating that problem recognition scores increased following feedback in general. When examined by group (see Table 6), the sample who had prior counseling demonstrated a

significant difference in pre ($M=14.12$, $SD=3.11$) and post ($M=14.3$, $SD=3.06$) feedback problem recognition scores, ($t(252) = -2.66$; $p<.05$; $d = .17$). For those without prior counseling participation the pre ($M=12.56$, $SD=3.24$) and post ($M=12.85$, $SD=3.25$) PHQ-8 Problem Recognition scores were also significantly different, ($t(280) = -3.755$; $p<.001$; $d = .22$), indicating a small increase in problem recognition scores after receiving feedback. It was also found that pre-feedback problem recognition scores were higher for those who had previously received counseling than those who had not, ($t(533)=-5.67$; $p<.001$). Similarly, post-feedback problem recognition scores remained higher for those who had received prior counseling than those who had not, ($t(533) = -1.98$; $p<.001$).

Table 6. *Problem Recognition t-tests*

Problem Recognition	No Counseling (n=281)		Previous Counseling (n=253)		Between-Groups Differences		
	Mean	Sd	Mean	sd	t(533)	p-value	Cohen's d
Before Feedback	12.56	3.24	14.12	3.11	-5.67	<.001	.49
After Feedback	12.85	3.25	14.3	3.06	-1.98	<.001	.46
	$r = .92$		$r = .94$				
	Change Pre/Post Feedback		Change Pre/Post Feedback				
	t(280)	p-value	t(252)	p-value			
	-3.75	<.001	-2.66	<.05			
	$d = .22$		$d = .17$				

Parceling and measurement models. The nature of SEM is that underlying measurement models must fit before fitting the structural model (Finch & French, 2015). The sample size in the current study was small given the complexity of the model, which included factors that are theoretically correlated but distinct (Wolf, Harrington, Clark, & Miller, 2013). Moreover, the data were multivariate non-normal for all latent variables. Suggestions for handling multivariate non-normal data include parceling (Matsunaga, 2008) or using different

approaches for analyzing the data, including changing the estimation methods or using bootstrapping (Bollen & Stine, 1993; Finch & French, 2015).

Item parceling is a method in which items are combined either intentionally (through systematic methods) or randomly into one or more composite scores that are used as indicators of a latent construct (Holbert & Stephenson, 2002; Matsunaga, 2008). Item parceling can be used to reduce the number of estimated parameters in models that are complex and when sample sizes are small (MacCallum, Browne, & Sugawara, 1996). One recommended strategy for parceling is first confirming unidimensionality through CFA of latent constructs (Matsunaga, 2008). In this study, CFAs confirmed unidimensionality of latent constructs and found that all latent variables had adequate unidimensionality based on at least three SEM test statistics. An exception was the construct of attitudes which showed poor fit for the data which included all items described in the attitudes scales listed above. Items MHSA 18, ATSPPHS 5, 7, 9, and 10 and AASMHS 21 and 23 were removed because they had factor loadings lower than .6 in an initial CFA which may indicate they did not load appropriately onto the construct (Tabachnick & Fidell, 2007). This removal improved model fit to acceptable for a one-factor solution for attitudes. See Table 7 for results of CFAs.

The next step is to develop three parcels for each construct, one method for which is factorial algorithm (Rogers & Schmitt, 2004). The factorial algorithm method calls for adding one item to each parcel and intentionally alternating which parcel gets the highest loaded item so no scale has proportionately more items with higher factor loadings. Table 7 below shows the CFA fit statistics for each latent construct before parceling. Based on the test statistics, parceling significantly reduced skewness and kurtosis. Because of insufficient degrees of freedom, CFAs could not be conducted following parceling.

Testing measurement models between groups. In order to determine whether the models of the latent variables fit equally well for those who had and had not received prior counseling, between groups CFAs were conducted. A between-groups comparison involved testing for configural invariance, measurement invariance, scalar invariance, and strict factor invariance by sequentially holding those parameters equal and then conducting a between groups ANOVA to determine if the models were significantly different from the fully invariant model (Finch and French, 2015). Per Finch and French (2015), if the configural invariant model is not significantly different from the fully invariant model, it is understood that all model parameters are invariant across groups. Results of between-groups CFAs testing for measurement invariance can be found in Table 8. Based on the non-significant ANOVA values, there were no significant differences between the fully and configurally invariant CFAs for any of the parceled scales. As such, measurement invariance was confirmed between groups. With measurement invariance established, between groups mean comparisons (using between groups CFA) and structural model invariance (using between groups SEM) can be tested.

Table 7. *Latent variable measurement model testing with CFA*

<u>Latent Variable</u>	<u>CFA method</u>	<u>Multivariate Skew</u>	<u>Multivariate Kurtosis</u>	χ^2	<u>p-value</u> χ^2	<u>CFI</u>	<u>TLI</u>	<u>RMSEA</u> (confidence interval)	<u>SRMR</u>
Attitudes	All Items	8445.15	33.8	1557.91	0	0.91	0.89	.08 (.075 - .085)	0.09
	Adjusted Scales	4485.47	29.28	925.91	0	0.94	0.93	.08 (.075 - .086)	0.089
Norms	All Items	12179.03	57.6	1670.58	0	0.94	0.93	.08 (.076 - .084)	0.095
PBC	All Items	4612.49	25.48	828.75	0	0.95	0.94	0.07 (.065 - .075)	0.081
Intention	All Items	3749.31	50.35	488.08	0	0.98	0.98	.07 (.063 - .077)	0.08
Problem Recognition	All Items	467.12	2.96	39.77	0	0.98	0.97	.08 (.056 - .106)	0.06

Table 8. *Measurement model invariance testing*

Latent Variable	Invariance Model	χ^2	χ^2 p-value (Bollen-Stine Bootstrap)	CFI	TLI	RMSEA (CI)	SRMR	ANOVA $\Delta\chi^2$	ANOVA p-value
<u>Attitudes</u>	Configural	0	0.745	1	1	0 (0 - 0)	0	11.09	0.20
	Full	11.09	0.239	0.997	1	.038 (0 - .087)	0.04		
<u>Norms</u>	Configural	0	0.885	1	1	0 (0 - 0)	0	6.24	0.62
	Full	6.24	0.657	1	1	0 (0 - .061)	0.02		
<u>PBC</u>	Configural	0	0.623	1	1	0 (0 - 0)	0	8.01	0.43
	Full	8.01	0.462	1	1	.002 (0 - .072)	0.06		
<u>Intention</u>	Configural	0	0.623	1	1	0 (0 - 0)	0	11.04	0.20
	Full	11.04	0.272	0.998	1	0.038 (0 - 0.086)	0.02		
<u>Problem Recognition</u>	Configural	0	0.853	1	1	0 (0 - 0)	0	7.59	0.47
	Full	7.59	0.463	1	1	0 (0 - .069)	0.04		

Between groups latent mean differences. To determine between groups latent mean differences, two CFAs were conducted. The first CFA is the comparison model with means held equal. The second CFA allowed means to vary between groups. The two models are then compared using ANOVA, which provides a χ^2 difference value and χ^2 p-value. Significant χ^2 p-values indicate the latent means for that construct differ significantly between groups (Finch & French, 2015). Effect size estimates can be calculated according to the method described by Hancock (2001), which is comparable to the effect size estimate Cohen's d described by Cohen (1988). Results of the means comparisons can be found in Table 9. Based on the results of the analyses, the group with prior counseling had significantly higher mean scores with small (.2 - .49) to medium (.5 - .79) effect sizes (Cohen, 1988) for all latent constructs except for norms. The latent means of the norms construct was not significantly different between the two groups.

Table 9. *Latent variable mean differences*

Latent Variable	Mean difference	p-value	Variance	Effect Size	ANOVA $\Delta\chi^2$	χ^2 p-value
Attitudes	0.28	<.001	0.4	0.45	23.98	<.001
Norms	0.19	<.001	0.37	0.31	6.24	0.621
PBC	0.16	0.008	0.43	0.24	7	0.008
Prob. Rec.	0.22	<.01	0.19	0.50	28.1	<.001
Intention	0.37	<.001	0.7	0.44	23.9	<.001

Testing structural models between groups. Because those with prior counseling are known to have different attitudes and intentions to seek counseling than those without counseling, a multiple groups SEM was run using prior counseling as the grouping variable. Diagonally Weighted Least Squares (DWLS) rotation was used as the latent variables were not

multivariate normal. Models that included problem recognition resulted in problems with the correlation matrix, and the model would not converge. As such, an alternative method, the Bollen-Stine bootstrapping method, a variation of Maximum Likelihood, was used as it also accounts for non-normal data, outliers, and complex models (Bollen & Stine, 1993; Finch & French, 2015).

The first step in testing between-groups structural invariance is to test whether the model fits for the full sample (Sass & Schmitt, 2013). The model that included a partially mediated path from problem recognition to intention and to intention through attitudes for the full sample showed poor model fit (see Table 10). To see if the poor fit was a result of between-groups differences, the same model was tested for each group separately. Separate analyses revealed that the partially mediated model was not a good fit for either group. The regression relationship between problem recognition and attitudes was not significant in the model for the full sample, but the relationship between problem recognition and intention was significant (see Figure 5 and Table 11). A model was tested without the indirect relationship between problem recognition and intention. This new model showed good fit for the full sample (see Table 10). The relationships between all predictor variables and intention were significant and positive, except for the relationship between norms and intention which was significant and negative (see Figure 6 and Table 11).

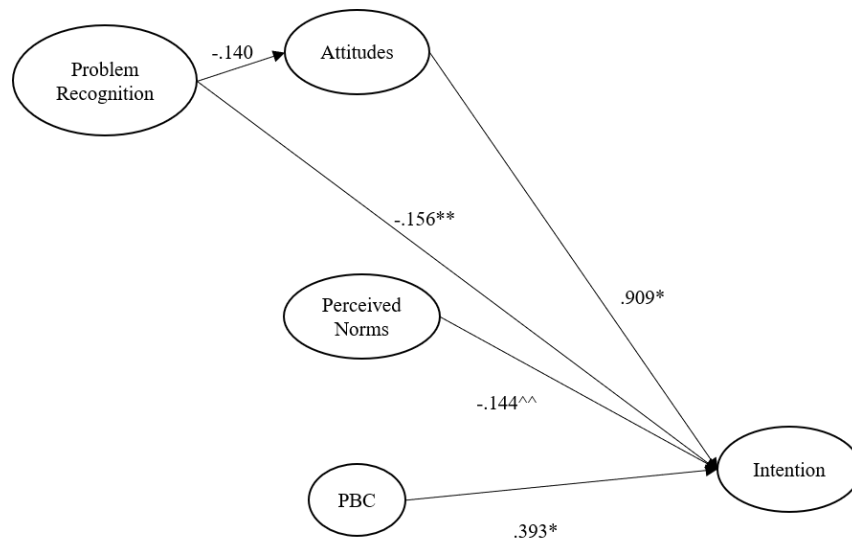


Figure 5. Full Sample Structural Equation Model. Partially mediated path between problem recognition and intention through attitudes. *indicates significant at $p < .001$, ** indicates significant at $p < .005$, ^ indicates significant at $p < .01$, ^^ indicates significant at $p < .05$. Prior Counseling in Parentheses.

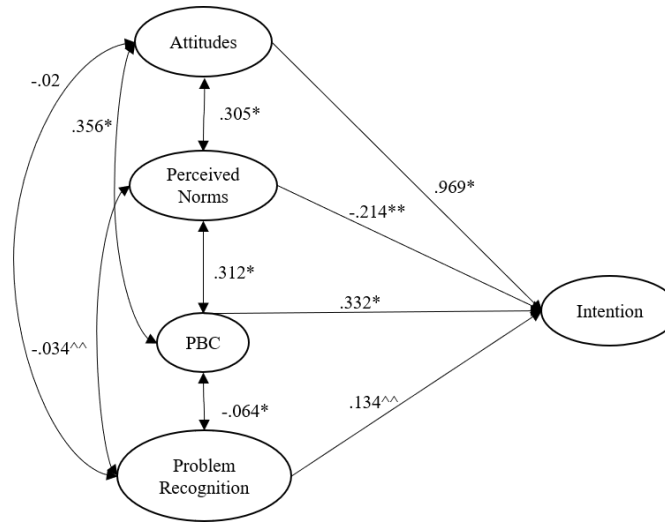


Figure 6. Full Sample Structural Equation Model. Unmediated path between problem recognition and intention. *indicates significant at $p < .001$, ** indicates significant at $p < .005$, ^ indicates significant at $p < .01$, ^^ indicates significant at $p < .05$. Prior Counseling in Parentheses.

Table 10. Between groups structural model testing

Model Number	Figure	χ^2	χ^2 p-value	CFI	Δ CFI	TLI	Δ TLI	RMSEA (CI)	Δ RMSEA	SRMR	Δ SRMR	$\Delta\chi^2$ (df)	ANOVA p-value
Full Sample Partially Mediated		805.102	0	0.906		0.879		.129 (.121 - .137)		0.284			
No Prior Counseling Partially Mediated		428.18	0	0.91		0.885		.123 (.111-.134)		0.258			
Prior Counseling Partially Mediated		452.973	0	0.899		0.87		.134 (.122-.146)		0.292			
Full Sample Non-Mediated	1	325.431	0	0.968		0.958		.076 (.067-.084)		0.04			
Between Groups (MI & SI) Non-Mediated	2	451.266	0	0.964		0.96		.074 (.065-.082)	0.004	0.045	-0.008	31.046 (26)	0.226
Between Groups (FC) Non-Mediated		482.313	0	0.964	0	0.964	-0.004	.070 (.062-.078)		0.053			

Note. MI = Measurement Invariance Model; SI = Scalar Invariance Model; FC = Fully Constrained Model; * $p < .001$, ** $p < .005$, ^ $p < .01$, ^^ $p < .05$

Table 11 *Full sample unmediated model bootstrapped ML estimates: Unstandardized parameter estimates, standard errors, and significances levels*

Latent Variable Regression	Unstandardized Estimate (β)	S.E.
INT <- ATT	0.97*	0.075
INT <- NORMS	-0.21*	0.067
INT <- PBC	0.33*	0.065
INT <- PROBREC	0.13^^	0.057
Covariances	Unstandardized Estimate (β)	S.E.
ATT <- NORMS	0.31*	0.025
ATT <- PBC	0.36*	0.029
ATT <- PROBREC	-0.02	0.014
NORMS <- PBC	.31*	0.026
NORMS <- PROBREC	-0.03^^	0.013
PBC <- PROBREC	-0.06*	0.016

Note. S.E. = Approximate Standard Error; INT = Intention; ATT = Attitudes; NORMS = Social Norms; PBC = Perceived Behavioral Control; PROBREC = post feedback problem recognition. * $p < .001$, ** $p < .005$, ^ $p < .01$, ^^ $p < .05$

Because the unmediated model for the full sample was a good fit for the data, a between groups test of structural invariance was conducted (Sass & Schmitt, 2013). Measurement invariance was previously established for each latent construct using between groups CFA. To test structural invariance, factor loadings and intercepts were held equal between groups (metric and scalar parameters held equal) to establish the fit of a baseline model. In the baseline model, variances, residuals, and means were allowed to vary between groups (Finch & French, 2015; Sass & Schmitt, 2013). The baseline model fit the data well (see Tables 10 and 11). As such, a fully constrained model was fit to the data and also showed good fit (see Table 10). An ANOVA was run to see if there was a significant difference between the fully constrained model and the baseline model. The change in χ^2 between the fully constrained and structural model was not significant (see Table 10), indicating the model fits equally well for both groups. The final

structural model is presented in Figure 7 with information about the relationships between variables in Table 12.

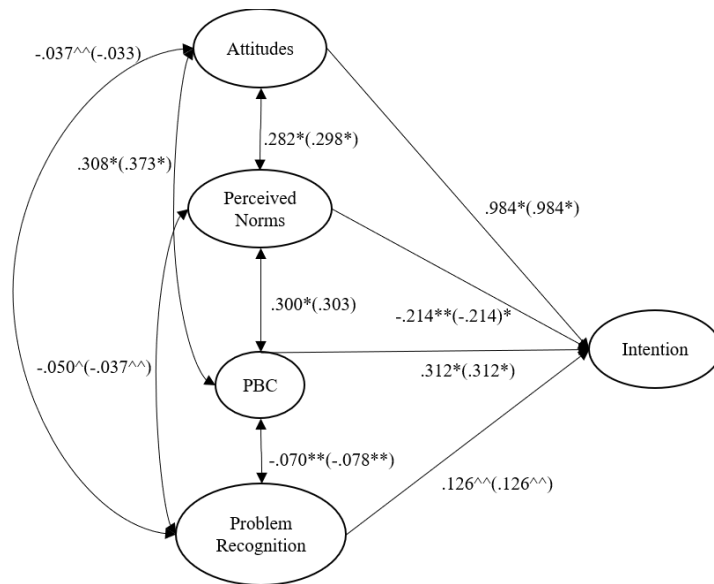


Figure 7. Between Groups Structural Equation Model. Unmediated path between problem recognition and intention. *indicates significant at $p < .001$, ** indicates significant at $p < .005$, ^ indicates significant at $p < .01$, ^^ indicates significant at $p < .05$. Prior Counseling in Parentheses.

Table 12. Between groups unmediated model bootstrapped ML estimates: Unstandardized parameter estimates, standard errors, and significances levels

	No Prior Counseling (n=281)		Prior Counseling (n=253)	
Latent Variable Regression	Unstandardized Estimate (β)	S.E.	Unstandardized Estimate (β)	S.E.
INT <- ATT	.984*	.075	.984*	.075
INT <- NORMS	-.214**	.065	-.214**	.065
INT <- PBC	.312*	.063	.312*	.063
INT <- PROBREC	.126^^	.058	.126^^	.058
Covariances	Unstandardized Estimate (β)	S.E.	Unstandardized Estimate (β)	S.E.
ATT <- NORMS	.282*	.031	.298*	.034
ATT <- PBC	.308*	.034	.373*	.042
ATT <- PROBREC	-.037^^	.019	-.033	.019
NORMS <- PBC	.300*	.033	.303*	.036
NORMS <- PROBREC	-.050^	.018	-.037^^	.018
PBC <- PROBREC	-.070**	.021	-.078**	.022

Note. S.E. = Approximate Standard Error; INT = Intention; ATT = Attitudes; NORMS = Social Norms; PBC = Perceived Behavioral Control; PROBREC = post feedback problem recognition. * $p < .001$, ** $p < .005$, ^ $p < .01$, ^^ $p < .05$

Supplemental Analyses

Between groups differences in other help-seeking. A series of chi-square tests were conducted to determine if those with and without prior counseling experiences had different rates of participation in other help-seeking behaviors or experiences. Compared to those without prior counseling, those with prior counseling experiences were significantly more likely to have seen a medical doctor for mental health issues in general or for depression specifically, more likely to have received a prescription for depression, received a mental health diagnosis from a doctor or other mental health professional, and to have been told they were depressed by a doctor or other mental health professional. See Table 13 below.

Table 13. *Between groups comparison of other forms of help-seeking*

Type of help-seeking	No Counseling (n=281)		Previous Counseling (n=253)		χ^2 Differences	
	n	(% of total)	n	(% of total)	χ^2 (df = 1)	p-value
Saw MD for MH Issues	68	24	164	65	89.41	<.001
Saw MD for Depression	54	19	141	56	76.57	<.001
Prescription for Depression	37	13	128	51	87.34	<.001
Received DX from MH Professional	11	4	149	59	191.76	<.001
Received DX from MD	54	19	139	55	73.62	<.001
Been told they were Depressed MH Prof.	12	4	142	56	174.45	<.001
Been told they were Depressed by MD	45	16	128	51	72.68	<.001

Depression severity. A chi-square test was also conducted to see if those with and without prior counseling were different in their current level of depression. Results indicated that there were no significant differences in distributions of current depression severity level scores between those with and without prior counseling experiences (see Table 14).

Table 14. *Chi-Square test of depression level differences*

PHQ-8 Level of Depression	No Counseling (n=281)		Previous Counseling (n=253)		χ^2 Differences	
	n	(% of sample)	n	(% of sample)	χ^2 (df = 3)	p-value
Mild	126	45	89	35	6.3033	0.098
Moderate	81	29	76	30		
Moderately Severe	47	17	55	22		
Severe	27	10	33	13		

Depression score and intention to seek help. Because prior literature has indicated that depression severity may impact help seeking attitudes, norms, PBC, intention, and problem recognition, exploratory models were examined to determine whether adding PHQ-8 scores to the model as an exogenous variable was a good fit for the data. These models should be considered post-hoc models, and there is an increased risk for Type I error from repeatedly testing different models and analyses on the same sample.

Measurement invariance had already been established for all latent constructs earlier in the study. PHQ-8 was considered an indicator variable in this study and not parceled to create a latent construct like the other variables. An initial model that included direct paths from total PHQ-8 score to all TPB variables showed poor fit for the data (see Table 15). The regressions were examined, and it was found that the direct path from problem recognition to intention was not significant and neither was the path from PHQ-8 to intention mediated by problem recognition. However, based on theory, this path is a critical step to intention to seek help. The model was adjusted to see if the direct path from PHQ-8 was absorbing too much variance and if a model with a fully mediated path from PHQ-8 to intention through problem recognition would improve the fit. In the new model, fit improved but still fails to be considered a good fit based on RMSEA and SRMR. The path from norms to intention became non-significant. Because in prior

theory norms has sometimes been unrelated to intention to seek help, the norms variable was removed from the model. This model also showed poor fit with the data. Because the problem recognition path in the initial model to intention was not significant, a model without problem recognition was examined. This model showed an improved but still poor fit for the data. A model with no mediated paths but with a direct path from PHQ-8 score to intention was examined. This model was also a poor fit for the data. Finally, a model which included a direct path from PHQ-8 to intention was created along with the mediated paths and was also a poor fit.

Because the paths from PHQ-8 to the TPB variables showed poor model fit for the data, it could be that the proposed "help-negation" effect of depression is not an influential factor in this population. A model was explored that contained a direct path from PHQ-8 to intention and a mediated path through problem recognition. This model was a poor fit for the data and showed that both the paths from PHQ-8 directly to intention, and the path from problem recognition to intention were not significant. The path from PHQ-8 to problem recognition, however, was significant. The final post hoc model run included only a fully mediated path from PHQ-8 to intention through problem recognition based on theory and the earlier findings in this study, which also resulted in poor model fit for the data.

Depression Literacy Analyses. Because depression literacy was related to problem recognition prior to receiving feedback, it follows that it is also related to problem recognition following feedback as the pre- and post-problem recognition scores are necessarily related. In the first analysis, paths were included from depression literacy to all TPB variables and problem recognition along with a direct path to intention. This model was a poor fit for the data. Based on theory and prior findings from this study, paths were trimmed to only include paths from depression literacy to problem recognition and attitudes. The model with paths from depression

literacy to problem recognition and attitudes only was supported by findings from the first analysis which showed that regressions were not significant from depression literacy to intention or PBC. The path to norms was significant, however, there is no theoretical support for this relationship. The new model had better fit but was still not a good fit for the data. Finally, two models were tested which had fully mediated paths. The first had a mediated path from depression literacy to intention through problem recognition. This model had adequate fit for the data. The second had a mediated path from depression literacy to intention through attitudes. This model showed poor fit, and so it is not likely that depression literacy is significantly related to attitudes toward help seeking. Table 16 contains fit statistics for models which include depression literacy, Table 17 describes parameter estimates for the model with good fit, and Figure 8 is a graphical representation of the structural model.

Table 15. *Between groups structural model testing for models including PHQ-8 scores*

Model Description	χ^2	χ^2 p-value	CFI	TLI	RMSEA (CI)	SRMR
Partially Mediated All Paths PHQ-8 Model	1070.02	0	0.878	0.848	0.138 (.130-.145)	0.28
All Paths Mediated PHQ-8 Model	787.47	0	0.948	0.935	.116 (.108 - .123)	0.11
All Paths Mediated PHQ-8 Model (No Norms)	683.18	0	0.927	0.906	.140 (.130 - .149)	0.12
All Paths Mediated PHQ-Model (No Problem Recognition)	351.54	0	0.976	0.968	.095 (.086 - .105)	0.09
Partially Mediated PHQ-8 Model (No Problem Recognition, Direct Path to Intention)	981.74	0	0.869	0.827	.171 (.162 - .181)	0.34
Partially Mediated PHQ-8 Model (No PHQ-TPB paths, Direct Path to Intention)	446.83	0	0.956	0.945	.083 (.075 - .090)	0.11
Fully Mediated PHQ-8 Model (No PHQ-TPB paths, No Direct intention relationship)	449.95	0	0.956	0.946	.082 (.075-.090)	0.1
Unmediated PHQ-8 Model (With Problem Recognition)	684.81	0	0.926	0.906	.108 (.101-.116)	0.12
Unmediated PHQ-8 Model (No Problem Recognition)	357.62	0	0.958	0.944	.097 (.088-.107)	0.11

Note. *p<.001, **p<.005, ^p<.01, ^^p<.05

Table 16. *Between groups structural model testing for effect of depression literacy*

Model Description	Figure Number	χ^2	χ^2 p-value	CFI	Δ CFI	TLI	Δ TLI	RMSEA (CI)	Δ RMSEA	SRMR	Δ SRMR	$\Delta\chi^2$ (df)	ANOVA p-value
Partially Mediated Model All Paths		1142.086	0	0.864		0.83		.143 (.135-.150)		0.315			
Fully Mediated Path through Problem Recognition and Attitudes		850.053	0	0.902		0.88		.120 (.113-.127)		0.276			
Fully Mediated Path through Problem Recognition	8	386.458	0	0.962		0.95		.075 (.067-.083)		0.071			
Fully Mediated Path through Problem Recognition (MI & SI)		529.696	0	0.959		0.96		.073 (.065 - .081)		0.079			
					-0.001		0.003		-0.003		0.004	30.836	0.127
Fully Mediated Path through Problem Recognition (FC)		560.532	0	0.958		0.96		.070 (.063-.078)		0.083			
Fully Mediated Path through Attitudes		846.865	0	0.903		0.88		.120 (.113-.128)		0.275			

Note. MI = Measurement Invariance Model; SI = Scalar Invariance Model; FC = Fully Constrained Model; *p<.001, **p<.005, ^p<.01, ^^p<.05

Table 17. *Between groups unmediated model bootstrapped ML estimates with depression literacy: Unstandardized parameter estimates, standard errors, and significances levels*

	No Prior Counseling (n=281)		Prior Counseling (n=253)	
Latent Variable	Unstandardized Estimate		Unstandardized Estimate	
Regressions	(β)	S.E.	(β)	S.E.
INT <- ATT	.987*	.074	.987*	.074
INT <- NORMS	-.214**	.065	-.214**	.065
INT <- PBC	.307*	.061	.307*	.061
INT <- PROBREC	.119^^	.054	.119^^	.058
Covariances	Unstandardized Estimate		Unstandardized Estimate	
	(β)	S.E.	(β)	S.E.
ATT <- NORMS	.282*	.031	.298*	.034
ATT <- PBC	.306*	.034	.371*	.042
NORMS <- PBC	.299*	.033	.301*	.036
PROBREC <- DLIT	.022**	.007	.022**	.007

Note. S.E. = Approximate Standard Error; INT = Intention; ATT = Attitudes; NORMS = Social Norms; PBC = Perceived Behavioral Control; PROBREC = post feedback problem recognition. DLIT = Depression Literacy * $p < .001$, ** $p < .005$, ^ $p < .01$, ^^ $p < .05$

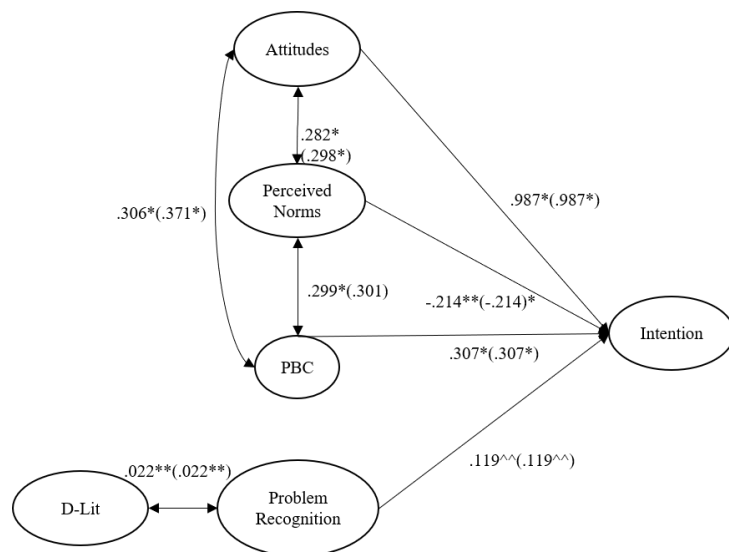


Figure 8. Between Groups Structural Equation Model with Problem Recognition. Unmediated path between problem recognition and intention. *indicates significant at $p < .001$, ** indicates significant at $p < .005$, ^ indicates significant at $p < .01$, ^^ indicates significant at $p < .05$. Prior Counseling in Parentheses.

Discussion

Review of study purpose

This study had four main objectives: to better understand the relationship between depression literacy and problem recognition, to see if brief, automated feedback led to changes in problem recognition, to better understand the relationship of problem recognition to factors that contribute to participation in mental health treatment for depression according to the Theory of Planned Behavior specifically if problem recognition was mediated by attitudes and if it was also related to subjective norms and PBC. Based on the Theory of Planned Behavior (Fishbein & Ajzen, 2010) and the model of mental health help-seeking for young people (Rickwood et al., 2005; Rickwood & Thomas, 2012), this study hypothesized that TPB constructs implemented in a structural model would fit the data well and that, when included in the TPB model, problem recognition would be positively correlated to intentions to seek help and be mediated by attitudes toward help-seeking. It was hypothesized that the exogenous variable, depression literacy, would have a positive relationship to problem recognition. It was also hypothesized that feedback about current depression symptom severity would increase problem recognition. Finally, that problem recognition would not be significantly related to subjective norms and PBC.

Hypothesis 1

Based on the analysis, there is a significant positive relationship between depression literacy and problem recognition, which is consistent for those with and without prior counseling experience. This relationship supports the hypothesis that participants with greater literacy about depression may be more likely to recognize when they have problems with depression. Currently, the relationship between mental health literacy and problem recognition is so closely conceptualized that many studies combine mental health literacy and problem recognition into a

single construct that is assessed through vignettes (Amarasuriya, Jorm, & Reavley, 2015; Hickie et al., 2007; Olsson & Kennedy, 2010; Reavley & Jorm, 2011; Wang et al., 2013). The literature generally supposes that those who are more knowledgeable about mental health are more likely to recognize that someone is experiencing a problem or that depression is a problem in general (Hickie et al., 2007; N. J. Reavley & Jorm, 2011). There is research, however, that suggests those who correctly identify depression in vignettes are not necessarily more likely to recognize their own depression (Wang et al., 2013). This is the first study known to the author that separates and clearly examines a relationship between depression literacy measured by a scale and personal problem recognition.

Another finding was that those who have had prior treatment were more likely to have higher depression literacy and problem recognition than those who had not previously participated in counseling. This finding is consistent with studies that found relationships between prior counseling and accurately self-recognizing depression and having higher mental health literacy according to the D-Lit (Fonseca, Silva, & Canavarro, 2017; Tomczyk et al., 2018). An important part of many types of counseling is psychoeducation about mental health and the efficacy of treatment. Moreover, those with prior treatment experiences may have obtained more accurate information about depression and developed a greater self-knowledge about their mental health through the counseling process.

Hypothesis 2

Hypothesis 2 asserted a brief feedback intervention would increase problem recognition. This hypothesis was also supported. The analyses revealed increases in problem recognition scores for all participants after receiving feedback about their responses on the PHQ-8. This

finding lends support to the research that college student women experienced increased self-awareness about their experiences of depression after receiving feedback (Hom et al., 2014).

It is important to note that the effect size of the difference in scores was small, but significant for those without prior counseling. The effect size was negligible for those with prior counseling. Further, the scores were significantly higher both pre- and post-feedback for those with prior counseling experiences, suggesting a greater baseline of problem recognition for those with prior counseling experiences. This higher baseline may mean that those with prior counseling may benefit less from a brief feedback intervention than those without prior experiences.

The results of this study are different from others that suggest feedback presented online does not have an impact on the process of help-seeking (Batterham et al., 2016; Gulliver et al., 2012). This study is the first known by this author to examine the relationship between feedback and problem recognition, rather than attitudes or intentions to seek help directly. The recognition of a mental health problem is theorized to precede intentions to seek help (Rickwood et al., 2005; Rickwood & Thomas, 2012). Based on prior research, recognition of a problem may occur well before someone concludes that treatment would be helpful (Elliott, Westmacott, Hunsley, Rumstein-McKean, & Best, 2015). It follows that a feedback intervention may not have an immediate impact on help-seeking attitudes or intentions. If this is the case, the problem recognition stage in the help-seeking process should be approached differently than intention to seek help stage.

Hypothesis 3

The hypothesis that there is a relationship between problem recognition and help-seeking intentions that is partially mediated by attitudes was not supported. In the partially mediated

model the relationship to attitudes was not a good fit. When the indirect relationship was removed, however, problem recognition continued to be significantly related to intentions to seek help and the model was a good fit for the data. This finding suggests that while both problem recognition and attitudes are related to intentions, they contribute separately to intentions.

In some research, evaluating whether therapy would be helpful is a separate step in the help-seeking process between recognizing a problem and making the decision to seek help (Elliott et al., 2015). Elliot et al. (2015) found that after they recognized a problem, most people who sought treatment took more than a few months to decide that treatment would help them. The current study explored problem recognition but did not account for the amount of time someone has recognized they have a problem. If participants have only recently recognized a problem, or if the feedback was the first information they had received about their symptoms of depression, they may not have taken time to evaluate whether therapy would be helpful in solving the problem. It could be that the time after recognizing the *current problem* requires separate evaluation and the time to evaluate impacts the relationship between problem recognition and attitudes, prior to influencing intentions.

Another potential reason for the lack of relationship is that following problem recognition a person might prefer other methods of solving a problem over seeking formal help. For example, in a review of help-seeking studies with young people found that a common reason for not seeking help was self-reliance or preferring to handle a problem by oneself (Gulliver et al., 2010; Thompson, Hunt, & Issakidis, 2004). In other studies, informal help-seeking from an intimate partner or friend was shown to be preferred by young adults over seeking help from a family member or mental health provider (Wilson, Rickwood, Bushnell, Caputi, & Thomas, 2011). Other research in problem recognition through vignette studies suggests that even when

people correctly recognize depression in others, they most often recommend other ways to address depression rather than counseling or professional help (Jorm et al., 2005).

Depression symptom severity may be important to consider given its negative correlation with TPB variables and positive correlation with problem recognition. In prior literature, there have been mixed findings about the relationship between depression symptoms and help-seeking. Theory suggests increased symptom severity and distress is the precursor to problem recognition and subsequent intentions to seek help (Rickwood et al., 2005). Some prior research provided evidence that greater depression severity is more highly associated with formal help-seeking (Jorm, Griffiths, Christensen, Parslow, & Rogers, 2004; Tomczyk et al., 2018) while lower symptom levels are more highly associated with informal help-seeking or self-help strategies (Jorm et al., 2004; Wilson, Rickwood, & Deane, 2007). The study by Wilson, Rickwood, and Deane (2007) showed that while intentions to seek informal support decreased with increases in depression severity, intention to seek formal help did not change, possibly due to generally low baseline rate of intention to seek formal help.

Concurrently, people who feel more depressed may generally be less hopeful about the helpfulness of treatment or may be more self-stigmatizing about help-seeking (Moritz, Schröder, Meyer, & Hauschildt, 2013). The concept of the help-negation effect was described by Wilson, Rickwood, and Deane (2007) to be the suppression of help-seeking due because of the inherent symptoms of depression including social withdrawal. Indeed, people who eventually seek help identified that their depression symptoms were a reason for delaying help-seeking (Thompson et al., 2004). Considering prior research, it could be that people's symptoms of depression may negatively impact their attitudes, perceived norms, and PBC about formal help-seeking and subsequently their intention to seek help. While they may wait to get help because of their

symptoms, when their symptoms worsen to a threshold severity, they may be willing to try treatment new strategies, even if they are skeptical that they will work. However, post hoc analyses in this study did not find that adding PHQ-8 score to the model was a good fit for the data. This would suggest that depression severity is not as important to help-seeking intention as other variables.

Finally, it is important to keep in mind the statistical methods when considering this hypothesis. Given the small Beta coefficient of the relationship between problem recognition and intention, it is important to consider potential problems in statistical analysis. Research has shown that using structural equation models, especially when holding factor loadings invariant, significantly reduces risk of type I error (Hancock, Lawrence, & Nevitt, 2000). When using an analysis as powerful as structural equation modeling, however, substantive theory and prior empirical research should be available to support the evaluated models (Finch & French, 2015). Even with good model fit, there could be several alternative models which fit the data and the directionality of relationships is not inherent in the analysis, it is implied by the way the syntax is entered by the researcher (Finch & French, 2015). Therefore, a researcher must keep in mind the rationale for the relationships and existing evidence to support them.

Though there is good evidence and theoretical support for the inclusion of problem recognition in a model of help-seeking (Elliott et al., 2015; Hom et al., 2014; Rickwood et al., 2005; Rickwood & Thomas, 2012), this study is the first to include problem recognition in a Theory of Planned Behavior framework. Moreover, it is the first study that has used the items on the problem recognition questionnaire as a unified, scale to measure the construct. It could be that other models which do not include problem recognition fit the data equally well, and that the significance of problem recognition is found in this study because of the power of structural

model. However, given the theoretical support and the conservative approach used in testing both the measurement and structural models in this study, it is likely that the chance of both type I and II error are reduced, and that problem recognition contributes to at least some of the variance in intention.

Hypothesis 4

Because the initially hypothesized model was not a good fit for the data, hypothesis 4 as originally stated could not be tested. However, using the revised model without the partially mediated relationship between problem recognition and intentions through attitudes, the hypothesis that social norms and PBC would not be related to problem recognition was not supported. The model found that there were significant, negative relationships between problem recognition and social norms, and problem recognition and PBC.

Social Norms. An unexpected phenomenon emerged from the primary analyses related to social norms. In all models, social norms were significantly, negatively related to intention to seek help and problem recognition, but positively related to attitudes and PBC. Norms were also the only variable that did not have statistically significant mean differences between those who have and have not had prior counseling. This is different from all other studies which have found either no relationship between norms and intention to seek help (Hartong, 2012, Ægisdottir & Gerstein, 2009) or positive relationships (Bohon et al., 2016). One hypothesis is that those with greater social support may not intend to seek help from formal sources because social support is correlated with fewer mental health difficulties (Harandi, Taghinasab, & Nayeri, 2017). The finding that the two groups did not significantly differ in perceived norms but did differ in attitudes and PBC may highlight that treatment impacts the way people think and feel about treatment and their perceived ability to obtain it.

Post hoc analysis findings. Though not part of the main study, several interesting findings were found through post hoc analyses. The first is that people who had previously participated in counseling or psychotherapy were significantly more likely to have participated in other mental health services including taking medications and talking to a doctor about their symptoms. This finding is important because it would suggest that there is something about the group who had previously participated in therapy that may make them more likely to seek mental health services in general or that they are better linked to mental health professionals. It is possible depression severity level is what differentiated with and without prior counseling, however this was not found in the post hoc analysis. The lack of difference in depression severity level between groups suggests that there are other key differences in the groups, many of which may be the TPB variables and problem recognition which were found to be significant predictors of intention to seek help.

Another finding from post hoc analysis is that when depression literacy was added to the model with a pathway mediated through problem recognition to intention, the model had a good fit. The relationship between depression literacy and problem recognition was statistically significant and positive, as was the relationship between problem recognition and intention. The analysis with the partially mediated path showed that there was not a direct relationship between depression literacy and intention to seek help. This could mean that depression literacy indeed fits well into the model of help seeking, however it does not immediately increase intention to seek help, nor does it impact attitudes, norms or perceived behavioral control. Rather depression literacy may increase self-recognition of problems with depression which then impacts their help-seeking intention. This mediated relationship would explain the reasons other people have

found that depression literacy is not a good predictor of help seeking intention or attitudes and that psychoeducation interventions do not immediately lead to increased intention to seek help.

Limitations

The proposed study has several limitations. The first is that feedback was received via text display, rather than provided by a mental health professional. This presentation style is a limitation as previous studies that have utilized live feedback about results of screening have had promising results in service utilization (Gould et al., 2009; Greenfield et al., 1997). Because it was administered online, those with limited computer access may not have been able to participate as readily in the study as if it would have been provided in person on campus. Though this is a limitation, it is also likely that a computer-based study is more accessible, because it can be available on demand, in a private setting, and without the need for transportation.

The feedback provided in this study was brief and specifically addressed depression severity. This limits the potential impact of the feedback and new knowledge gained from feedback alone. It is also possible that any increased problem recognition, intention to seek help, or changes in attitudes, norms, or PBC could be attributed as much to the multitude of questions being asked about the subject of depression and help-seeking as to the feedback itself. However, this study attempted to reduce the effects of the questionnaires by presenting them randomly and by intentionally requesting information about depression literacy and problem recognition prior to other questionnaires being administered.

Another limitation of this study is the measure for problem recognition was designed based on prior instruments and these studies were the first to use the items as a combined scale. Though the instrument was initially validated using reliability analysis in a pilot study (see Appendix Z), further refinement of the instrument may improve its factor structure when used in

studies of help-seeking. This is the first multi-item instrument known to this author to address current problem recognition that specifically includes a question about self-perception of depression as problematic. In a review of mental health literacy literature, researchers found that most studies utilize vignettes with follow up questions to assess a combination of problem recognition and mental health literacy (Furnham & Swami, 2018). Using vignettes to assess problem recognition may not translate as well to direct recognition of one's own problems, a step thought to be important as a precursor to the help-seeking process (Rickwood et al., 2005; Rickwood & Thomas, 2012).

Because all the measures specifically target depression and services for depression, in this study, there is less ambiguity in interpreting the results than if more broad measures of help-seeking for various mental health difficulties were used. Though the narrow focus of the measures in this study is a strength in some respects, it is a limitation in other respects. The narrow focus limits the ability to understand predictors of help-seeking from other sources and for other mental health difficulties. Because young people may be more likely to seek support from informal sources, especially at lower levels of depression (Jorm et al., 2004; Tomczyk et al., 2018), this study neglects a significant source of potential support for college women.

This study was a cross-sectional study and did not follow up with participants to discover if help-seeking intention was related to actual help-seeking behavior. This is a common limitation of TPB help-seeking studies (Bohon et al., 2016; Chen et al., 2015; Hartong, 2012) and a major criticism of TPB research (Sniehotta, Presseau, & Araújo-Soares, 2014). This limitation may be especially important given that there is some research support that following problem recognition, it may take time to form more positive attitudes and intentions to get help for depression (Elliott et al., 2015).

Finally, this study focused on a specific population, college student women with current symptoms of depression. Because of the scope of the sample, generalizability of the findings is limited and may not be applicable to college students who are men, to those not in college, or to those that do not have symptoms of depression.

Implications for Theory

The Theory of Planned Behavior has been found to significantly predict help-seeking intentions in multiple studies (Bohon et al., 2016; Chen et al., 2015; Demyan & Anderson, 2012; Hartong, 2012). However, a finding from this study that is difficult to interpret is the inverse relationship between depression recognition and help-seeking attitudes, perceived norms, PBC, and intentions (Moritz et al., 2013). It may be that while TPB for help-seeking generally works for health behaviors, and even for mental health help-seeking, the specific symptoms of a mental health problem must be considered as influential on the outcomes of help-seeking intentions and behaviors. Moreover, the importance of timeframe may be important to consider given that participants were immediately asked questions about TPB variables after receiving feedback. Future theory may be developed keeping temporal precedence, including time frame and length of time between steps in the help-seeking process in mind.

Another theoretical implication from this study is that there may be more evidence of directional relationships from depression literacy, to problem recognition, to help-seeking intention. Depression literacy may be highlighted in the theory and its relevance to predicting whether someone will recognize their own symptoms of depression even if they have not received help before or been given feedback. Depression literacy may be considered in help-seeking models as a preventive or early intervention approach to help-seeking in much the same way that problem recognition, intentions, and behaviors are included. Including depression

literacy and problem recognition as consistent exogenous variables to TPB studies could provide a richer picture of the help-seeking process.

While TPB hypothesizes that perceptions that supportive others may encourage a behavior and therefore increase intentions to perform the behavior, the relationship between perceived norms and help-seeking may be more complicated. When a person is getting messages that they should get help for a problem, the same people may be receiving more social support thus decreasing the intention to get the support from an outside source. Because TPB combines perceived support for performing a behavior and having similar others as examples of performing a behavior, some information about how the two may interact differently for help-seeking is lost. Differentiating them may provide more information about the relationships between social support and social stigma in relation to help-seeking intention.

Implications for Practice

Prior research about the impact of feedback on help-seeking has been mixed especially in online format (Batterham et al., 2016; Gould et al., 2009; Greenfield et al., 1997; Hom et al., 2014). However, this study gives some credibility to the impact of feedback on problem recognition. The availability of such feedback may be helpful as an initial way to increase awareness and problem recognition, especially for those with no prior help-seeking experiences. However, given the much larger relationships of TPB predictor variables to help-seeking intention compared to the relatively small relationship of problem recognition and the lack of positive and significant relationships between problem recognition and TPB predictor variables, it cannot be expected that such an intervention will greatly increase the likelihood of help-seeking in an immediate way. Given the finding that depression literacy was also related to problem recognition it may be most helpful to design interventions which simultaneously utilize

feedback and other psychoeducational or motivational strategies to improve problem recognition in order to impact intention to seek help.

Another implication from this study, in light of other research that describes time lags between problem recognition (Elliott et al., 2015), preferences for ways to deal with depression before help-seeking (Gulliver et al., 2010; Thompson et al., 2004; Wilson et al., 2011), and the potential impact of worsening symptoms on help-seeking processes and preferences (Jorm et al., 2004; Lueck, 2018; Moritz et al., 2013) is that repeated assessments with step-wise recommendations and treatments may be more helpful than a blanket feedback and treatment or referral based on current symptoms. It may be especially important to recognize that the more depressed someone is, it may be harder it may be for them to have positive attitudes, normative beliefs, and perceived control over help-seeking behaviors (i.e. the help negation effect). Using strategies such as motivational interviewing and psychoeducation about the helpfulness of depression for their specific problem, recruiting social support to encourage help-seeking, and improving knowledge of and access to resources could reduce some of the impact of depression symptoms on help-seeking.

Implications for Research

This study was the first to utilize a scale of problem recognition to specifically address depression. Future research may utilize this scale and further assess the factor structure, reliability, and validity to determine whether it is an appropriate instrument for problem recognition. Because the scale was correlated as expected to prior counseling experiences, depression literacy, and intentions to seek help, it may be a more effective way to study self-recognition of depression as a problem than vignette studies, one item surveys of problem recognition, and open-ended responses.

While this study was focused on formal help-seeking for depression by design, it may be helpful to conduct large scale studies that included the same focused components of TPB, but instead considered informal help-seeking for depression as the behavior of interest. Some of the items which were excluded from the LC and MHSA scales in this study because of their lack of relationship to the behavior of interest would be appropriate to use in studies which explored informal help-seeking, self-help strategies, group therapy, and medications for depression. All of those behaviors are shown to be effective ways to address depression symptoms and it would be equally valuable to understand how TPB could contribute to the knowledge on college student engagement in those behaviors.

Though this study found relationships between depression literacy and problem recognition, feedback and increased problem recognition, and problem recognition and intentions to seek help, because of sample size and complexity limitations, the different components were not combined in a single structural analysis. One of the benefits of SEM is the ability to handle complex longitudinal and mediation models given a large enough sample size (Finch & French, 2015). It seems that these variables examined in one model would be better understood and may shed more light on the complex and time delineated processes of help-seeking described in theoretical models (Rickwood et al., 2005; Rickwood & Thomas, 2012). The post hoc analyses in this study would further support this exploration in future research.

The methods used in this study were not experimental which limits the ability of the researcher to make conclusions about the causal relationship between the feedback intervention and increased problem recognition. Future studies may recruit more participants and randomly assign them to a feedback group or control group. This would allow for stronger conclusions about the impact of online feedback on problem recognition. Similarly, this study did not

alternate the presentation of depression literacy items and pre-feedback problem recognition. It could be that asking questions about depression literacy primed participants to recognize depression as problematic before they were asked the questions. Future studies could systematically alternate the presentation of various components of this survey and may find that the timing of feedback and asking about TPB components impacts problem recognition in different ways. For example, it would be interesting to see if those who answer the post-feedback problem recognition questionnaire after all of the TPB questionnaires are more likely to recognize depression as a problem than those who answer the problem-recognition questionnaire prior to the TPB questionnaires.

Conclusion

The present study was the first to include problem recognition into the Theory of Planned Behavior related to help seeking intentions for college student women. There was strong theory to support that problem recognition is a key process to help-seeking behaviors and this study confirmed that those who had higher scores on a problem recognition questionnaire had greater help-seeking intentions. Moreover, this study generally supports TPB as a model for help-seeking, however the negative relationship between perceived norms and help-seeking is a unique finding. Other key findings of this study are that depression literacy is related to problem recognition, people with prior counseling experiences have higher depression literacy and problem recognition, and that brief online feedback about symptom severity may increase recognition of mental health problems for college student women. Future research should broaden the scope of this study by examining the fit of the theory to college student men and other populations. Researchers may also adopt a longitudinal design to determine if those with greater intentions are more likely to participate in treatment and to find the amount of time

between problem recognition and help-seeking behavior. Clinicians and public health officials may utilize the information from this study to design feedback interventions that also provide psychoeducation. They may also recognize that those types of interventions may not have an immediate impact on help-seeking, and so must still be diligent in reaching out to college students with symptoms of depression to ensure they are getting appropriate services when needed.

References

- Ægisdottir, S., & Gerstein, L. H. (2009). Beliefs About Psychological Services (BAPS): development and psychometric properties. *Counselling Psychology Quarterly*, 22, 197–219.
- Aguinis, H., Gottfredson, R. K., & Joo, H. (2013). Best-Practice Recommendations for Defining, Identifying, and Handling Outliers. *Organizational Research Methods*, 16(2), 270–301.
- Alvidrez, J., & Azocar, F. (1999). Self-Recognition of Depression in Public Care Women's Clinic Patients. *Journal of Women's Health & Gender-Based Medicine*, 8, 1063.
- Amador, X. F., Strauss, D. H., Yale, S. A., Flaum, M. M., Endicott, J., & Gorman, J. M. (1993). Assessment of insight in psychosis. *The American Journal Of Psychiatry*, 150, 873–879. (8494061).
- Amarasuriya, S. D., Jorm, A. F., & Reavley, N. J. (2015). Quantifying and predicting depression literacy of undergraduates: A cross sectional study in Sri Lanka. *BMC Psychiatry*, 15.
- Batterham, P. J., Calear, A. L., Sunderland, M., Carragher, N., & Brewer, J. L. (2016). Online screening and feedback to increase help-seeking for mental health problems: population-based randomised controlled trial. *Bjpsych Open*, 2(1), 67–73.
- Beatie, B. E., Stewart, D. W., & Walker, J. R. (2016). A moderator analysis of the relationship between mental health help-seeking attitudes and behaviours among young adults. *Canadian Journal of Counselling and Psychotherapy*, 50, 290–314.
- Bohon, L. M., Cotter, K. A., Kravitz, R. L., Cello, P. C., & Fernandez y Garcia, E. (2016). The Theory of Planned Behavior as it predicts potential intention to seek mental health services for depression among college students. *Journal of American College Health*, 64, 593–603.
- Bollen, K. A., & Stine, R. A. (1993). Bootstrapping Goodness-of-Fit Measures in Structural Equation Models. *Sociological Methods & Research*, 21, 205–229.
- Bonabi, H., Müller, M., Ajdacic-Gross, V., Eisele, J., Rodgers, S., Seifritz, E., ... Rüsch, N. (2016). Mental health literacy, attitudes to help seeking, and perceived need as predictors of mental health service use: A longitudinal study. *Journal of Nervous and Mental Disease*, 204, 321–324.
- Caplan, S., & Buyske, S. (2015). Depression, Help-Seeking and Self-Recognition of Depression among Dominican, Ecuadorian and Colombian Immigrant Primary Care Patients in the Northeastern United States. *International Journal of Environmental Research and Public Health*, 12, 10450–10474.
- Chaudron, L. H., Kitzman, H. J., Peifer, K. L., Morrow, S., Perez, L. M., & Newman, M. C. (2005). Self-recognition of and provider response to maternal depressive symptoms in low-income Hispanic women. *Journal Of Women's Health (2002)*, 14, 331–338.
- Chen, J. I., Romero, G. D., & Karver, M. S. (2015). The Relationship of Perceived Campus Culture to Mental Health Help-Seeking Intentions. *Journal of Counseling Psychology*, 63, 677–684.
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. Routledge.
- Corson, K., Gerrity, M. S., & Dobscha, S. K. (2004). Screening for depression and suicidality in a VA primary care setting: 2 items are better than 1 item. *The American Journal Of Managed Care*, 10, 839–845.
- Demyan, A. L., & Anderson, T. (2012). Effects of a brief media intervention on expectations, attitudes, and intentions of mental health help seeking. *Journal of Counseling Psychology*, 59, 222–229.

- Eisenberg, D., Hunt, J., Speer, N., & Zivin, K. (2011). Mental health service utilization among college students in the United States. *Journal of Nervous and Mental Disease*, 199, 301–308.
- Elhai, J.D., Schweinle, W., and Anderson, S.M. (2008). Reliability and validity of the Attitudes Toward Seeking Professional Psychological Help Scale – Short Form. *Psychiatry Research*, 159, 320–329.
- Elliott, K. P., Westmacott, R., Hunsley, J., Rumstein-McKean, O., & Best, M. (2015). The Process of Seeking Psychotherapy and Its Impact on Therapy Expectations and Experiences. *Clinical Psychology & Psychotherapy*, 22, 399–408.
- Finch, H., & French, B. (2015). *Latent Variable Modeling with R*. New York, NY: Routledge/Taylor & Francis Group.
- Fischer, E. H., & Farina, A. (1995). Attitudes toward seeking professional psychological help: A shortened form and considerations for research. *Journal of College Student Development*, 36, 368–373.
- Fishbein, M., & Ajzen, I. (2010). *Predicting and Changing Behavior: The Reasoned Action Approach*. New York, NY: Psychology Press.
- Fonseca, A., Silva, S., & Canavarro, M. C. (2017). Depression literacy and awareness of psychopathological symptoms during the perinatal period. *Journal of Obstetric, Gynecologic, & Neonatal Nursing: Clinical Scholarship for the Care of Women, Childbearing Families, & Newborns*, 46, 197–208.
- Furnham, A., & Swami, V. (2018). Mental health literacy: A review of what it is and why it matters. *International Perspectives in Psychology: Research, Practice, Consultation*, 7, 240–257.
- Geisner, I. M., Neighbors, C., & Larimer, M. E. (2006). A Randomized Clinical Trial of a Brief, Mailed Intervention for Symptoms of Depression. *Journal of Consulting & Clinical Psychology*, 74, 393–399.
- Gould, M. S., Marrocco, F. A., Hoagwood, K., Kleinman, M., Amakawa, L., & Altschuler, E. (2009). Service use by at-risk youths after school-based suicide screening. *Journal of the American Academy of Child and Adolescent Psychiatry*, 48, 1193–1201.
- Greenfield, S. F., Reizes, J. M., Magruder, K. M., Muenz, L. R., Kopans, B., & Jacobs, D. G. (1997). Effectiveness of community-based screening for depression. *The American Journal of Psychiatry*, 154, 1391–1397.
- Griffiths, K. M., Christensen, H., Jorm, A. F., Evans, K., & Groves, C. (2004). Effect of web-based depression literacy and cognitive-behavioural therapy interventions on stigmatising attitudes to depression: randomised controlled trial. *The British Journal Of Psychiatry: The Journal Of Mental Science*, 185, 342–349.
- Gulliver, A., Griffiths, K. M., & Christensen, H. (2010). Perceived barriers and facilitators to mental health help-seeking in young people: a systematic review. *BMC Psychiatry*, 10, 113–113.
- Gulliver, A., Griffiths, K. M., Christensen, H., Mackinnon, A., Caele, A. L., Parsons, A., ... Stanimirovic, R. (2012). Internet-based interventions to promote mental health help-seeking in elite athletes: an exploratory randomized controlled trial. *Journal Of Medical Internet Research*, 14(3), e69–e69.
- Hancock, G. R. (2001). Effect size, power, and sample size determination for structured means modeling and mimic approaches to between-groups hypothesis testing of means on a single latent construct. *Psychometrika*, 66, 373–388.

- Hancock, G. R., Lawrence, F. R., & Nevitt, J. (2000). Type I Error and Power of Latent Mean Methods and MANOVA in Factorially Invariant and Noninvariant Latent Variable Systems. *Structural Equation Modeling: A Multidisciplinary Journal*, 7, 534–556.
- Harandi, T. F., Taghinasab, M. M., & Nayeri, T. D. (2017). The correlation of social support with mental health: A meta-analysis. *Electronic Physician*, 9, 5212–5222.
- Hartong, J. M. (2012). *Help seeking and the theory of planned behavior in college students: Experiment and model testing*. ProQuest Information & Learning, US.
- Hickie, I. B., Davenport, T. A., Luscombe, G. M., Rong, Y., Hickie, M. L., & Bell, M. I. (2007). The assessment of depression awareness and help-seeking behaviour: Experiences with the International Depression Literacy Survey. *BMC Psychiatry*, 7.
- Holbert, R. L., & Stephenson, M. T. (2002). Structural Equation Modeling in the Communication Sciences, 1995–2000. *Human Communication Research*, 28, 531–551.
- Hom, M., Heaney, C., & Koopman, C. (2014). Personalized normative feedback for depression symptoms: A qualitative pilot study of female undergraduates. *Academic Psychiatry*, 38, 464–469.
- Jang, Y., Yoon, H., Chiriboga, D. A., Molinari, V., & Powers, D. A. (2015). Bridging the gap between common mental disorders and service use: The role of self-rated mental health among African Americans. *The American Journal of Geriatric Psychiatry*, 23, 658–665.
- Jorm, A. F., Griffiths, K. M., Christensen, H., Parslow, R. A., & Rogers, B. (2004). Actions taken to cope with depression at different levels of severity: a community survey. *Psychological Medicine*, 34, 293–299.
- Jorm, Anthony F. (2012). Mental Health Literacy: Empowering the Community to Take Action for Better Mental Health. *American Psychologist*, 67, 231–243.
- Jorm, Anthony F., Nakane, Y., Christensen, H., Yoshioka, K., Griffiths, K. M., & Wata, Y. (2005). Public beliefs about treatment and outcome of mental disorders: a comparison of Australia and Japan. *BMC Medicine*, 3, 12–12.
- Kenny, R., Dooley, B., & Fitzgerald, A. (2016). How psychological resources mediate and perceived social support moderates the relationship between depressive symptoms and help-seeking intentions in college students. *British Journal of Guidance & Counselling*, 44, 402–413.
- King, C. A., Eisenberg, D., Zheng, K., Czyz, E., Kramer, A., Horwitz, A., & Chermack, S. (2015). Online suicide risk screening and intervention with college students: A pilot randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 83, 630–636.
- Klineberg, E., Biddle, L., Donovan, J., & Gunnell, D. (2011). Symptom recognition and help seeking for depression in young adults: a vignette study. *Social Psychiatry & Psychiatric Epidemiology*, 46, 495–505.
- Kroenke, K., & Spitzer, R. L. (2002). The PHQ-9: A new depression diagnostic and severity measure. *Psychiatric Annals*, 32, 509–515.
- Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, 16, 606–613.
- Kroenke K, Spitzer RL, Williams JBW, & Löwe B. (2010). The Patient Health Questionnaire Somatic, Anxiety, and Depressive Symptom Scales: a systematic review. *General Hospital Psychiatry*, 32, 345–359 15p.
- Kroenke, K., Strine, T. W., Spitzer, R. L., Williams, J. B. W., Berry, J. T., & Mokdad, A. H. (2009). The PHQ-8 as a measure of current depression in the general population. *Journal Of Affective Disorders*, 114, 163–173.

- Lannin, D. G., Vogel, D. L., Brenner, R. E., & Tucker, J. R. (2015). Predicting self-esteem and intentions to seek counseling: The internalized stigma model. *The Counseling Psychologist, 43*, 64–93.
- Li, W., Dorstyn, D. S., & Denson, L. A. (2014). Psychosocial correlates of college students' help-seeking intention: A meta-analysis. *Professional Psychology: Research and Practice, 45*, 163–170.
- Lipson, S. K., Gaddis, S. M., Heinze, J., Beck, K., & Eisenberg, D. (2015). Variations in student mental health and treatment utilization across US colleges and universities. *Journal of American College Health, 63*, 388–396.
- Lueck, J. A. (2018). Respecting the “stages” of depression: Considering depression severity and readiness to seek help. *Patient Education & Counseling, 101*, 1276–1282.
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods, 1*, 130–149.
- Marsh, C. N., & Wilcoxon, S. A. (2015). Underutilization of mental health services among college students: An examination of system-related barriers. *Journal of College Student Psychotherapy, 29*, 227–243.
- Matsunaga, M. (2008). Item Parceling in Structural Equation Modeling: A Primer. *Communication Methods and Measures, 2*, 260–293.
- Mo, P. K. H., & Mak, W. W. S. (2009). Help-seeking for mental health problems among Chinese. *Social Psychiatry & Psychiatric Epidemiology, 44*, 675–684.
- Moritz, S., Schröder, J., Meyer, B., & Hauschildt, M. (2013). The More It Is Needed, the Less It Is Wanted: Attitudes Toward Face-to-Face Intervention Among Depressed Patients Undergoing Online Treatment. *Depression and Anxiety, 30*, 157–167.
- Olsson, D. P., & Kennedy, M. G. (2010). Mental health literacy among young people in a small US town: recognition of disorders and hypothetical helping responses. *Early Intervention in Psychiatry, 4*, 291–298.
- Pressler, S. J., Subramanian, U., Perkins, S. M., Gradus-Pizlo, I., Kareken, D., Kim, J., ... Sloan, R. (2011). Measuring depressive symptoms in heart failure: validity and reliability of the patient health questionnaire-8. *American Journal Of Critical Care: An Official Publication, American Association Of Critical-Care Nurses, 20*, 146–152.
- Reavley, N. J., & Jorm, A. F. (2011). Recognition of mental disorders and beliefs about treatment and outcome: findings from an Australian National Survey of Mental Health Literacy and Stigma. *Australian and New Zealand Journal of Psychiatry, 45*, 947–956.
- Reavley, N., McCann, T., Cvetkovski, S., & Jorm, A. (2014). A multifaceted intervention to improve mental health literacy in students of a multicampus university: a cluster randomised trial. *Social Psychiatry & Psychiatric Epidemiology, 49*, 1655–1666.
- Rickwood, D., Deane, F. P., Wilson, C. J., & Ciarrochi, J. (2005). Young people's help-seeking for mental health problems. *AeJAMH (Australian e-Journal for the Advancement of Mental Health), 4*(3).
- Rickwood, D. J. (2010). Promoting youth mental health through computer-mediated communication. *International Journal of Mental Health Promotion, 12*(3), 32–44.
- Rickwood, D., & Thomas, K. (2012). Conceptual measurement framework for help-seeking for mental health problems. *Psychology Research and Behavior Management, 5*.

- Rogers, W. M., & Schmitt, N. (2004). Parameter Recovery and Model Fit Using Multidimensional Composites: A Comparison of Four Empirical Parceling Algorithms. *Multivariate Behavioral Research*, 39, 379–412.
- Ryan, M. L., Shochet, I. M., & Stallman, H. M. (2010). Universal online interventions might engage psychologically distressed university students who are unlikely to seek formal help. *Advances in Mental Health*, 9, 73–83.
- Sass, D., & Schmitt, T. (2013). Testing Measurement and Structural Invariance: Implications for Practice. In *Handbook of Quantitative Methods for Educational Research* (pp. 315–345). Netherlands: Sense Publishers.
- Saunders, S. M. (1993). Applicants' experience of the process of seeking therapy. *Psychotherapy: Theory, Research, Practice, Training*, 30, 554–564.
- Schomerus, G., Matschinger, H., & Angermeyer, M. C. (2009). Attitudes that determine willingness to seek psychiatric help for depression: A representative population survey applying the Theory of Planned Behaviour. *Psychological Medicine*, 39, 1855–1865.
- Sijtsma, K., & van der Ark, L. A. (2003). Investigation and treatment of missing item scores in test and questionnaire data. *Multivariate Behavioral Research*, 38, 505–528.
- Sniehotta, F. F., Pesseau, J., & Araújo-Soares, V. (2014). Time to retire the theory of planned behaviour. *Health Psychology Review*, 8(1), 1–7.
- Sontag-Padilla, L., Woodbridge, M. W., Mendelsohn, J., D'Amico, E. J., Osilla, K. C., Jaycox, L. H., ... Stein, B. D. (2016). Factors affecting mental health service utilization among California public college and university students. *Psychiatric Services*, 67, 890–897.
- Sturman, E. D., & Sproule, B. A. (2003). Toward the development of a Mood Disorders Insight Scale: modification of Birchwood's Psychosis Insight Scale. *Journal Of Affective Disorders*, 77, 21–30.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics* (5th ed.). New York: Allyn and Bacon.
- Thomas, S. J., Caputi, P., & Wilson, C. J. (2014). Specific Attitudes Which Predict Psychology Students' Intentions to Seek Help for Psychological Distress. *Journal of Clinical Psychology*, 70, 273–282.
- Thompson, A., Hunt, C., & Issakidis, C. (2004). Why wait? Reasons for delay and prompts to seek help for mental health problems in an Australian clinical sample. *Social Psychiatry and Psychiatric Epidemiology*, 39, 810–817.
- Thompson, A., Issakidis, C., & Hunt, C. (2008). Delay to Seek Treatment for Anxiety and Mood Disorders in an Australian Clinical Sample. *Behaviour Change*, 25(2), 71–84.
- Tomczyk, S., Muehlan, H., Freitag, S., Stolzenburg, S., Schomerus, G., & Schmidt, S. (2018). Is knowledge “half the battle”? The role of depression literacy in help-seeking among a non-clinical sample of adults with currently untreated mental health problems. *Journal Of Affective Disorders*, 238, 289–296.
- Van Ginkel, J. R., Andries Van der Ark, L., Sijtsma, K., & Vermunt, J. K. (2007). Two-way imputation: A Bayesian method for estimating missing scores in tests and questionnaires, and an accurate approximation. *Computational Statistics & Data Analysis*, 51, 4013–4027.
- Vogel, D. L., Wade, N. G., Wester, S. R., Larson, L., & Hackler, A. H. (2007). Seeking help from a mental health professional: The influence of one's social network. *Journal of Clinical Psychology*, 63, 233–245.
- Vogel, D.L., Wester, S.R., Wei, M., and Boysen, G.A. (2005). The role of outcome expectations

- and attitudes on decisions to seek professional help. *Journal of Counseling Psychology*, 52, 459-470.
- Wang, J., Häusermann, M., Berrut, S., & Weiss, M. G. (2013). The impact of a depression awareness campaign on mental health literacy and mental morbidity among gay men. *Journal of Affective Disorders*, 150, 306-312.
- Wilson, Coralie J., Rickwood, D. J., Bushnell, J. A., Caputi, P., & Thomas, S. J. (2011). The effects of need for autonomy and preference for seeking help from informal sources on emerging adults' intentions to access mental health services for common mental disorders and suicidal thoughts. *Advances in Mental Health*, 10(1), 29-38.
- Wilson, Coralie Joy, Rickwood, D., & Deane, F. P. (2007). Depressive symptoms and help-seeking intentions in young people. *Clinical Psychologist*, 11(3), 98-107.
- Wolf, E. J., Harrington, K. M., Clark, S. L., & Miller, M. W. (2013). Sample Size Requirements for Structural Equation Models: An Evaluation of Power, Bias, and Solution Propriety. *Educational and Psychological Measurement*, 76, 913-934.
- Wright, A., Jorm, A. F., Harris, M. G., & McGorry, P. D. (2007). What's in a name? Is accurate recognition and labelling of mental disorders by young people associated with better help-seeking and treatment preferences? *Social Psychiatry and Psychiatric Epidemiology*, 42, 244-250.
- Wright, A., Jorm, A. F., & Mackinnon, A. J. (2011). Labeling of mental disorders and stigma in young people. *Social Science & Medicine*, 73, 498-506.
- Yokopenic, P. A., Clark, V. A., & Aneshensel, C. S. (1983). Depression, problem recognition, and professional consultation. *Journal of Nervous and Mental Disease*, 171(1), 15-23.
- Zuvekas, S. H., & Fleishman, J. A. (2008). Self-rated mental health and racial/ethnic disparities in mental health service use. *Medical Care*, 46, 915-923.

Appendix A: Extended Review of Literature

Introduction

Mental health treatment is underutilized by college students with mental health difficulties (Eisenberg, Hunt, Speer, & Zivin, 2011; Lipson, Gaddis, Heinze, Beck, & Eisenberg, 2015; Sontag-Padilla et al., 2016) despite research support for the effectiveness of counseling (Lambert et al., 2006; Minami et al., 2009; Monti, Tonetti, & Bitti, 2013). Many researchers have studied factors that may influence help-seeking intentions and behaviors of college students. Rickwood and Thomas (2012) stated the importance of utilizing a clear conceptual framework when researching psychological help-seeking with young people. The Theory of Planned Behavior (TPB) has been used to understand which psychosocial factors are related to help seeking and the relationships of these factors with intention to seek counseling (Bohon, Cotter, Kravitz, Cello, & Fernandez y Garcia, 2016; Chen, Romero, & Karver, 2015; Demyan & Anderson, 2012; Hartong, 2012). While TPB's key predictor variables are significantly related to intention to seek help, exogenous psychosocial factors (gender, prior help seeking, clinical distress, and problem recognition) add to the understanding college students' intentions to seek help (Bonabi et al., 2016; Demyan & Anderson, 2012; Hartong, 2012; Thomas, Caputi, & Wilson, 2014).

Personalized feedback interventions which target self-awareness of symptoms may subsequently influence problem recognition to change attitudes and intention to seek help (Geisner, Neighbors, & Larimer, 2006; Hom, Heaney, & Koopman, 2014). The proposed study utilizes feedback to increase self-awareness and problem recognition if efforts to positively influence help seeking intentions for those experiencing depression.

Review of the Literature

Presence of Mental Health Problems for College Students

Mental health difficulties impact many college students in the United States each year. It is estimated that between 19% and 35% of students screen positive for mental health concerns (Eisenberg et al., 2011; Lipson et al., 2015; Sontag-Padilla et al., 2016). Numerous researchers have described the efficacy of psychotherapy to improve mental health outcomes for college students (Hayes, McAleavey, Castonguay, & Locke, 2016; Lambert et al., 2006; Minami et al., 2009; Monti et al., 2013). Specifically, they have found psychotherapy is effective in reducing the number and severity of mental illness symptoms (Minami et al., 2009) and in reducing distress related to mental health symptoms (Monti et al., 2013).

Despite the prevalence of mental health difficulties and the reported effectiveness of counseling, there is low utilization of mental health treatment by college students. Eisenberg et al. (2011) found that for participants with “minor” depression, approximately 28% of students sought and received some amount of psychotherapy. The researchers found higher utilization rates for those with panic disorder, as about 59% of those who screened positive received counseling. For those with at least one mental health concern that sought counseling, about 67% continued with counseling for four or more sessions (Eisenberg et al., 2011). By learning about influential factors related to psychological help seeking for college students, mental health professionals might develop interventions which increase utilization rates for those with mental health concerns.

Theory of Planned Behavior for Psychological Help Seeking

Seeking help from a professional for mental health difficulties may prevent further mental health, academic, or social problems for college students. Romano and Netland (2008)

recommended counseling psychologists conduct prevention research and implement interventions using the Theory of Planned Behavior (TPB). According to Fishbein and Ajzen (2010), an individual's intention to perform a behavior is the main predictor of actual performance of the behavior. A mega-analysis of research on behavioral intention found about half of people who intend to perform a behavior actually complete their intended behavior (Sheeran, 2002). In TPB, an individual's intention to complete a behavior is based on their: behavioral beliefs (which manifest as attitudes toward the behavior,) normative beliefs (which manifest as perceived norms,) and control beliefs (which manifest as perceived behavioral control or PBC). The salience of each of these predictor variables may be different for different behaviors and for different demographic groups based on their background characteristics (Fishbein & Ajzen, 2010).

Li, Dorstyn, and Denson (2014) conducted a meta-analysis of 18 studies about psychological help seeking intention among college students. In this meta-analysis, attitudes ($r=.46$) and anticipated utility ($r=.42$) were most strongly positively associated with intention to seek help, while adherence to Asian values ($r=-.15$), public stigma ($r=-.11$), and anticipated risk ($r=-.10$) were most negatively associated with help seeking intention. While social support, self-concealment, and self-disclosure were hypothesized in several of the included studies to be related to help seeking, mixed evidence led the associations between these variables and help seeking to be non-significant (Li, Dorstyn, & Denson, 2014). With the exception of perceived norms, the variables significantly related to intention to seek help predominantly align with the important predictor variables described in TPB. Therefore, it seems appropriate to use TPB as a model for studying intention to seek psychological help.

The Theory of Planned Behavior model relies heavily on idiosyncratic measures which elicit salient beliefs about the predictor variables from a target population making it especially helpful and culturally adaptable (Romano & Netland, 2008). The model incorporates other salient background characteristics of the specified target population by including them as exogenous variables which may influence the three predictor variables. Romano and Netland (2008) argued that well-designed, theoretically based, longitudinal studies using TPB would provide greater understanding of prevention behaviors. They indicated that studies developed in accordance with this framework would be based on salient information gathered from the target population rather than speculation on the part of the researchers about important variables. Further, they stated TPB studies would aid in the development of effective interventions to increase preventative behaviors, such as psychological help seeking, because the intervention would target the beliefs most salient to the target group (Romano & Netland, 2008).

Studies based on TPB have explored the relationships between attitudes, perceived norms, and perceived behavioral control. Researchers found significant correlations between these predictor variables and intention to seek psychological help among community samples (Hyland, McLaughlin, Boduszek, & Prentice, 2012; Mo & Mak, 2009; Schomerus, Matschinger, & Angermeyer, 2009). However, the strength of correlation between each predictor variable and intention was different in each study. It might be interpreted that different populations studied are differently influenced by each of the three types of beliefs. These findings would be consistent with the hypotheses of Fishbein and Ajzen (2010). That is, the salience of each predictor is different based on characteristics of the population studied. It may be important to find evidence from research with the population of interest about which predictors are the most

strongly correlated with intention to seek help before developing interventions to change intention.

TPB to Predict College Students' Intention to Seek Help

Several studies have examined college student help seeking based on TPB (Bohon et al., 2016; Chen et al., 2015; Demyan & Anderson, 2012; Hartong, 2012) and the researchers have shown adequate fit of the TPB models they used for predicting psychological help seeking intention among college students. However, there is inconsistent evidence for which, if any, of the three predictor variables explains most of the variability in intention to seek help.

Demyan and Anderson (2012) included measures of the three predictor variables, however, in the analysis the authors did not include mediation models to determine if there was a path between belief-based barriers, attitudes toward counseling, and intention to seek counseling. Further, the measures included for belief-based barriers and attitudes about counseling included items and constructs which are related to all three constructs of attitudes, perceived norms, and PBC as described by Fishbein and Ajzen (2010). This is noteworthy as analyzing all of these predictor variables in one construct, rather than three separate constructs, may limit predictive power. Analyzing the factors together, rather than separately, may prevent understanding which types of belief-based barriers and which types of attitudes are the most salient to the participants.

In a study by Chen et al. (2015), the authors included measures of psychosocial predictor variables which were previously published. These included the Discrimination/Devaluation Scale (DDS), the Attitudes to Professional Psychological Help Seeking (ATPPHS), Barriers to Treatment Participation Scale, and the General Help Seeking Questionnaire (GHSQ). The authors used structural equation modelling to analyze the data from this study and found 43% of the variance of intention to seek help was accounted for by the TPB model. The authors noted

attitudes was the only significant predictor variable out of the three included in TPB. Moreover, the authors hypothesized that because attitudes had such a large influence, they may have suppressed the correlations between the other two predictors and intention (Chen et al., 2015).

Another researcher studied college student help seeking using TPB using subscales from the Beliefs About Psychological Services scale, the Inventory of Attitudes Toward Seeking Mental Health Services, and the Beliefs and Evaluations About Counseling Scale to measure the components of TPB (Hartong, 2012). This researcher reported the TPB model was a good fit for the data, consistent with the results found by Chen et al. (2015). However, in this study both Perceived Behavioral Control and Attitudes were significantly correlated with intention to seek help. Moreover, Hartong reported PBC was more positively correlated with intention than were attitudes.

A study published by Bohon, Cotter, Kravitz, Cello, and Fernandez y Garcia (2016) discovered relationships between variables similar to those relationships found by Hartong (2012). In their study, the authors developed idiosyncratic measures based on pilot studies. The intent was to elicit the most salient attitudes, perceived norms, and PBC of their sample population. They specifically studied psychological help seeking for depression from a doctor. These authors found no significant correlation between subjective norms and intention to seek help for depression but found both attitudes and PBC were significantly correlated with intention to seek help for depression. The structural equation model reported by the authors explained 93% of the variance for intention to seek help for depression by using the three predictor variables as latent variables. In this study, attitudes were more strongly correlated with intention than was PBC (Bohon et al., 2016), which is different than the information found by Hartong (2012).

While there have been few studies using the full model of TPB to understand the relationship between attitudes, perceived norms, and PBC and intention to seek psychological help, there has been much more research conducted by authors exploring parts of the model independently. Many researchers utilize standardized measures of the predictor variables which include items that do not align with the definitions put forth by Fishbein and Ajzen (2010). As such, when possible, it may be important to examine specific items or subscales described by authors, rather than construct reported in general.

Attitudes. Fishbein and Ajzen (2010) define attitudes as “positive or negative evaluation of [a person] performing the behavior in question,” (p.20). According to the authors, attitudes have both an instrumental (cognitive) component and an experiential (affective) component. Attitudes were consistently found to be significant predictors of intention to seek help in studies using TPB (Bohon et al., 2016; Chen et al., 2015; Hartong, 2012). Several other studies have looked at specific types of attitudes held by college students and their relationships to intention to seek help.

Self-stigma is described as a loss of self-esteem an individual would experience if they were to seek psychological help (Vogel, Wade, & Haake, 2006). In the context of TPB, this would be considered an experiential attitude a person has about help seeking. Lannin, Vogel, Brenner, and Tucker (2015) found a significant negative relationship between self-stigma and intention to seek help, and that this relationship was one of two that mediated the relationship between public stigma and intention to seek help (Lannin, Vogel, Brenner, & Tucker, 2015).

Perceived benefit of performing a behavior is considered an instrumental attitude in the context of TPB. Thomas, Caputi, and Wilson (2014) found one specific attitude item on the ATSPPHS to be positively correlated to intention to seek help. Specifically, they found students

who endorsed the item “A person with an emotional problem is not likely to solve it alone; he or she is likely to solve it with professional help” were 1.5 times more likely to intend to seek psychological help. Similarly, in their meta-analysis of significant predictors of psychosocial factors which influence mental health help seeking, Li et al. (2014) found the anticipated utility of counseling had a large and positive correlation with intention to seek help.

Perceived norms. Perceived norms, as defined by Fishbein and Ajzen are “perceived social pressure to engage or not engage in a behavior,” (p.20) and are based on injunctive and descriptive norms. Injunctive norms are what the individual believes other people, significant to the individual, think the individual should do. Descriptive norms are based on the individual’s perception of what others like the individual do. The evidence for the relationship between college students’ perceived norms and their intention to seek help has been mixed. Related to descriptive norms, Vogel et al. (2007) found that those who knew someone else who had sought help had more positive attitudes toward seeking help and also greater intention to seek help than those who did not know someone else who had sought help.

Related to injunctive norms, perceived social stigma toward help seeking has been found by some researchers to be positively correlated with seeking help. That is, the more a student perceived social stigma related to seeking help from a professional, the more likely they were to have participated in counseling (Marsh & Wilcoxon, 2015). However, other researchers have found social stigma to be negatively correlated with intention to seek help, and that this relationship was mediated by self-stigma for seeking help (Lannin et al., 2015). For college students, it may be better to conceptualize the relationship between perceived norms and intention to seek help as mediated by attitudes than as a direct relationship.

Perceived behavioral control. Perceived behavioral control (PBC) is based on the perceived factors which either help or impede attempts to carry out a target behavior based on the individual's perceived capacity (ability) and autonomy (the person's control over performing the behavior.) Though there is some evidence of the importance of PBC in intention to seek help from the studies of TPB (Bohon et al., 2016; Hartong, 2012), there is a relative dearth of information about this relationship between PBC and intention from other researchers. Marsh and Wilcoxon (2015) found that students who were concerned about cost of treatment were 1.5 times more likely to not seek help. This effect was found even when including perceived stigma and attitudes toward help seeking (Marsh & Wilcoxon, 2015).

Important exogenous variables

Fishbein and Ajzen (2010) describe attitudes, perceived norms, and PBC as the key predictors of behavioral intention. They also assert key background or exogenous variables often influence the predictor variables and correlate with intention to perform a behavior (Fishbein & Ajzen, 2010). Background factors considered in many TPB studies are demographic variables (such as gender, race, and socioeconomic status), past behavior, dispositional characteristics, emotion, and knowledge about a behavior and its consequences (Fishbein & Ajzen, 2010). Though the exact mechanisms by which exogenous variables influence intention may be different based on the different characteristics of each population, Fishbein and Ajzen described that the relationship between the exogenous variables and intention are often mediated by attitudes, perceived norms, and PBC. Moreover, the background characteristics of participants may be the targets of interventions aimed to influence the predictor variables and subsequently intention to perform a behavior (Fishbein & Ajzen, 2010). The body of research on

psychological help seeking with college students provides information about the exogenous variables which seem to be important for predicting intention to seek help.

Prior diagnosis and treatment. As described by Fishbein and Ajzen, prior behavior is often a significant predictor of future behavior, and prior counseling experience has been included as an exogenous variable by many researchers of help seeking (Demyan & Anderson, 2012; Hartong, 2012; Vogel, Wade, Wester, Larson, & Hackler, 2007). A person's prior experience with depression and treatment for depression seems to influence help seeking intentions, and it is important to consider these influences when studying help seeking, screening for depression, and creating interventions to increase intention to seek help. Brief depression assessment instruments may be used for a variety of purposes; to detect new cases of depression for people previously not diagnosed, to assess for severity of depression symptoms, and to monitor the progression of symptoms over time (Kroenke, Spitzer, Williams, & Löwe, 2010). Depression screening in primary care settings is recommended (Pignone et al., 2002; U.S. Preventative Services Task Force, 2009), and may help identify and treat new cases of depression which may have otherwise gone undiagnosed. Rice and Thombs (2016) conducted a systematic review of studies of assessments as screening tools. They found many studies had included people already diagnosed or treated for depression, despite a stated primary purpose of screening for new cases of depression. This is problematic as this practice may inflate the number of depression cases being recognized as new cases to be recommended for treatment, rather than correctly categorizing them as ongoing instances of depression (Rice & Thombs, 2016).

The inclusion of persons already diagnosed with depression, in studies of depression interventions using brief screening and feedback, may be problematic. Interventions aimed to increase self-awareness and problem recognition would not likely give a person who already

knows they are diagnosed with depression new or additional information. Moreover, it is likely that a person who knows they have been diagnosed with depression has been seen by either a mental health or medical professional for either medical treatment or counseling. This is important as those with prior counseling experiences are known to have different attitudes toward help-seeking, intentions to seek help, and utilization rates of future mental health treatment (Bonabi et al., 2016; Ægisdottir & Gerstein, 2009), and it may be because they already have greater self-awareness and problem recognition.

In the college student help-seeking literature, researchers consistently find those with prior counseling experience have different attitudes toward help-seeking and intentions to seek help than those without such experiences (Bonabi et al., 2016; Ægisdottir & Gerstein, 2009). Specifically, those with prior counseling participation have more favorable attitudes toward counseling (Bonabi et al., 2016; Ægisdottir & Gerstein, 2009). Those who have had previous treatment are also more likely to actually participate in psychotherapy (Bonabi et al., 2016) than those who have not previously been in therapy. Given the consistency of this finding, people who have prior participation in counseling may be considered a fundamentally distinct group from those without such experiences. This distinction, coupled with the intended purpose of brief assessment as a screening tool for new cases of depression, warrants studying those without prior counseling participation or diagnosis of depression separately than those who already have been diagnosed or treated.

The factors which influence help-seeking for those not previously diagnosed or treated are likely different than those who have already been diagnosed or sought help in the past. One reason those without prior diagnoses or treatment experience are less likely to seek help or view

help-seeking as favorable is that they may have less knowledge about depression symptoms and treatment than those who have been previously diagnosed or treated.

Mental health literacy. Mental health literacy, broadly defined, is knowledge and beliefs about mental disorders including recognition, management, and prevention (Jorm, 2012). There has been mixed evidence of the impact of mental health literacy on seeking help for psychological disorders. Some researchers have found positive correlations between depression literacy and personal use of psychotherapy for those who endorse general symptoms of mental health problems (Bonabi et al., 2016). There is also evidence that accurate labeling of symptoms of depression in vignettes (a common proxy for mental health literacy) has been associated with participants recommending the person in the story seek help from a mental health professional rather than dealing with the problem on their own (Klineberg, Biddle, Donovan, & Gunnell, 2011; Wright, Jorm, Harris, & McGorry, 2007; Wright, Jorm, & Mackinnon, 2011).

However, accuracy in labeling the symptoms of others does not seem to always influence personal help-seeking attitudes or behaviors for people with depression symptoms (Beatie, Stewart, & Walker, 2016). If mental health literacy is not the sole factor in changing attitudes toward counseling for those who have participated in treatment, it may be that those with previous diagnoses and treatment experiences are more aware of their own symptoms. They may also more readily acknowledge symptoms as problematic, than those who have not already sought counseling for depression. This acknowledgement may occur because they have been told by someone else that they have a diagnosis and that their symptoms can or should be changed. It may also occur because they have learned about the symptoms of depression and how therapy works during treatment. So, while it may be that those who have greater mental health literacy are more likely to identify their own symptoms of depression, this may not always be the case,

even when they have knowledge of symptoms and can recognize symptoms of depression in others.

Gender. Gender is another variable often considered in research about help seeking intention and behavior. Many studies have found gender is a significant predictor of intention to seek help, with women being more likely than men to intend to seek help (Demyan & Anderson, 2012; Thomas et al., 2014) or actually utilize psychotherapy (Sontag-Padilla et al., 2016; Vogel et al., 2007).

Vogel et al. (2007) speculated that the relationship between gender and treatment utilization is influenced by social differences between men and women. Specifically, they found women were more likely than men to have been prompted to seek help and were more likely than men to know someone else who had sought help. In the context of TPB, prompting may serve as a mediating variable between gender and perceived norms. Perceived norms would then mediate the relationship between prompting and intention to seek help. Conceptualizing prompting and perceived norms as mediating variables between gender and intention to seek help would be consistent with speculation of such relationships from Fishbein and Ajzen (2010). That is, they describe that the background characteristic itself may not influence intention, but rather another contextual factor often mediates the relationship between the background factor, the TPB predictor variable, and intention (Fishbein & Ajzen, 2010).

When considering exogenous variables, it is also important to consider interactions between the variables and their relation to intention to seek help. For instance, Demyan and Anderson (2012) found a significant three-way interaction between gender, prior help seeking, distress level and intention to seek help. Specifically, men who had previously seen a counselor and experiencing clinical levels of distress had greater intention to seek help than others.

Psychological distress, depression symptoms, and perceived need. Psychological distress has been as considered an exogenous variable important to predicting utilization of psychotherapy or intention to seek help from a professional. However, there seems to be mixed evidence of a correlation between endorsement of psychological symptoms, their severity, and intention to seek help from a mental health professional, even when mediated by TPB predictor variables (Kenny, Dooley, & Fitzgerald, 2016; Li et al., 2014; Ryan, Shochet, & Stallman, 2010; Sontag-Padilla et al., 2016). In the context of TPB, if those with more distress had greater intention to seek services, they would be utilizing more mental health services. This is because intention is considered the best predictor of actual behavior. However, considering college students who reported mental health difficulties underutilize services (Eisenberg et al., 2011; Lipson et al., 2015; Sontag-Padilla et al., 2016), Fishbein and Ajzen's hypothesis is supported that since high distress is not correlated with high intention to seek help in TPB studies, high distress does not lead to an increase in help-seeking, and those with high distress are indeed not seeking help.

It is possible that other variables mediate the relationship between psychological distress and intention to seek mental health services. Some researchers have examined the relationship between recognition of distress and perceived need for mental health services and the utilization of services. Though their study was not with college students, Bonabi et al. (2016) researched psychotherapy utilization with people who screened positive for high severity psychopathology. They found the participants who perceived a personal need for treatment were more likely to participate in psychotherapy than those who did not.

A problematic aspect of many studies of college students' intentions to seek help is that the studies include participants who do not endorse any symptoms of mental health difficulties (Bohon et al., 2016). Having some type of mental health symptoms is a key characteristic of

help-seeking as the first step of help-seeking is that a person becomes aware of and appraises symptoms as problematic (Rickwood, Deane, Wilson, & Ciarrochi, 2005). In a clinical setting, those who endorse symptoms of depression would ideally be those recommended for further treatment including medication or psychotherapy (Kroenke, Spitzer, Williams, & Löwe, 2010). Those with no symptoms or at minimal risk would be participants not expected to seek help and would not be targeted with interventions to increase immediate intention (Kroenke K et al., 2010). These participants may be targeted with other types of preventative interventions, such as informational campaigns to increase mental health literacy and encourage help-seeking should they develop symptoms in the future (Rickwood & Thomas, 2012). In the TPB framework, those without mental health difficulties may have different beliefs, attitudes, subjective norms, and PBC regarding help-seeking and its utility because they are part of a population distinct from those with mental health difficulties. This may be because they are not experiencing symptoms of a mental health problem and so would likely not believe they would benefit from therapeutic interventions to treat depression or that those important to them would encourage them to seek treatment.

Self-awareness of symptoms

Rickwood et al. (2005) described a process of help-seeking which begins with awareness and appraisal of mental health problems. Awareness in this framework is a necessary first step toward help-seeking. For this study, the operational definition of self-awareness is a person's identification and labeling of their own mental health symptoms as depression. Even people with high mental health literacy who endorse symptoms of depression may have difficulty recognizing and labeling their own symptoms as depression. Self-identification and labeling of depression may make symptom recognition more personal and thus increase likelihood to seek

help. For example, it seems personal experiences with mental health problems, either for oneself or others, may be influential in help-seeking (Beatie et al., 2016). For example, people with a higher level of personal familiarity (i.e. having a mental illness vs. seeing a portrayal on television) with mental health difficulties are more likely to have positive attitudes towards seeking help and to participate in actual help-seeking behavior (Beatie et al., 2016).

Problem recognition

Though symptom identification and labeling may be important, appraisal of mental health difficulties is an important second component to the beginning stage of the help-seeking process for college students (Rickwood et al., 2005). The operational definition of appraisal used for this study is the evaluation of one's own mental health. Self-recognition (of mental health problems) is a construct which combines the appraisal of one's own mental health and mental health difficulties with the perceived need for help (Caplan & Buyske, 2015). For those with symptoms of depression, self-recognition of the symptoms may motivate the individual to seek help to address the symptoms. Those with poor or fair self-rated mental health are more likely to seek help for depression than those who rate their mental health as good or excellent (Caplan & Buyske, 2015).

Self-recognition of mental health symptoms as problematic may increase the likelihood of help-seeking. However, there is evidence to support the assertion that people who endorse depression symptoms may not always recognize these symptoms as problematic (Alvidrez & Azocar, 1999; Jang, Yoon, Chiriboga, Molinari, & Powers, 2015; Klineberg et al., 2011; Saunders, 1993; Yokopenic, Clark, & Aneshensel, 1983; Zuvekas & Fleishman, 2008). There may be a period of several years between the onset of symptoms and recognition of the

symptoms of problematic (Thompson, Issakidis, & Hunt, 2008). This delay in problem recognition may also delay help-seeking behaviors (Thompson, Issakidis, & Hunt, 2008).

It may be beneficial to improve recognition and labeling of symptoms and their problematic nature to increase perceived need for treatment and thus help-seeking. While not all people seek help even after recognition of a problem, people who self-recognized depression as a problem are more likely to seek help and more likely to have a conversation with a medical provider about depression than those who do not (Alvidrez & Azocar, 1999; Bonabi et al., 2016; Chaudron et al., 2005). One way to increase self-awareness and self-recognition is for health care professionals to provide diagnoses and treatment recommendations when they recognize mental health symptoms in patients. Women receiving medical treatment in a public care clinic who were told by a doctor they had depression were about four times more likely to identify that they had a mental health difficulties and that their mental health difficulty was depression, than women who were not given that information from a doctor (Alvidrez & Azocar, 1999). Therefore, a person may endorse symptoms of depression, but if the person does not recognize the symptoms as depression *and that they are problematic*, the person may be less likely to seek help. An intervention that increases self-awareness, may subsequently increase problem recognition, and may increase intention to seek help through counseling for depression.

While not described as problem recognition, two other studies may provide support for the relationship between self-awareness of mental health symptoms as problematic and intention to seek help. In their study with college students, Thomas et al. (2014) found those who endorsed the item “If I believed that I was having a mental breakdown, my first thought would be to get professional attention” from the ATSPPHS, were 1.7 times more likely to intend to seek help. Another study with college students by Vogel et al. (2007) found that those who were prompted

to seek help had greater intention to seek help. These factors are not described as problem recognition of mental health symptoms in the studies, however both could be considered indicators that the person recognizes their difficulty (“If I believed that I was having a mental breakdown”) or made aware by others (prompted) they are having mental health problems.

In sum, exogenous variables are important to consider when studying help seeking behavior with college students.

Interventions to Increase Intention to Seek Psychological Help

Interventions using Theory of Planned Behavior. Using the Theory of Planned Behavior seems to be appropriate for predicting psychological help seeking intention for college students (Bohon et al., 2016; Chen et al., 2015; Hartong, 2012). The next step in the process of increasing intention to seek psychological help for college students is to change their attitudes, perceived norms, or perceived behavioral control. Two researchers have created interventions to influence some or all of these predictors based on TPB and had mixed success.

Hartong (2012) created an intervention to influence predictor variables and intention to seek psychological help for college students. This researcher noted previous interventions did not attempt to measure and change all three of the TPB predictor variables (attitudes, perceived norms, and perceived behavioral control), but rather focused only on one or two. Hartong created a video intervention which attempted to increase intention to seek psychological help by influencing all three predictor variables. The video was created to provide information about the counseling process and was based on the Elaboration Likelihood Model, TPB, and the psychological help seeking literature. The researcher found differences between the treatment and control groups for all three TPB predictor variables. However, there was no difference in intention to seek help between the two groups when the author compared them using a MIMIC

model. When a non-mediation model was used to analyze the data, the author found a difference in intention to seek help between the groups. Moreover, as described earlier, subjective norms were not significantly correlated with psychological help seeking intention, even for the intervention group.

Demyan and Anderson (2012) created a brief media intervention for college students which aimed to increase intention to seek mental health services for alcohol or drug use, academic concerns, and interpersonal problems. The authors created their intervention based on TPB and specifically tailored the message to address belief-based barriers to receiving counseling. Their intervention consisted of a two-minute video “public service announcement,” which was shown multiple times to a treatment group watching a longer video about music. Participation in the media intervention group was associated with more positive attitudes about counseling but did not have a significant relationship to intention to seek counseling.

These interventions provided psychoeducation about the counseling process (Hartong, 2012) and information about counseling to change belief-based predictors and expectations about counseling (Demyan & Anderson, 2012). These interventions did not specifically attempt to change exogenous psychosocial variables related to help seeking which may have limited their overall effectiveness. Fishbein and Ajzen (2010) indicate it may be helpful to target beliefs by targeting exogenous variables. If the exogenous variable is a precursor to the belief, it may be the first target of intervention having a downstream effect on beliefs and intention.

Feedback interventions. Self-awareness has been identified as an important exogenous variable to TPB for help seeking intention (Bonabi et al., 2016; Hom et al., 2014; Rickwood et al., 2005; Vogel et al., 2007). Feedback interventions about symptoms of depression have been implemented with college students in efforts to reduce symptoms of depression (Geisner et al.,

2006; Hom et al., 2014). Though the purpose of these interventions was to decrease symptoms, the interventions influenced other psychological variables as well. Geisner et al. (2006) created a personalized feedback intervention for college students which was delivered by mail. Along with assessing for symptoms of depression, the authors gathered information about willingness to cope through self-help strategies. However, these authors did not gather information about seeking help from a mental health professional. The authors found male participants who received the feedback intervention reported greater willingness to use self-help strategies (Geisner et al., 2006). Willingness to seek professional help may also be increased, however this was not assessed in Geisner et al.'s study.

Another study also used a personalized feedback to influence mental health literacy and reduce symptoms of depression. Hom, Heaney, and Koopman (2014) created an online personalized feedback intervention for symptoms of depression specifically for college women. This intervention assessed depression symptoms and provided immediate, online information about the levels of depression for other students in the study and their own levels of depression. The students with moderately severe to severe levels of depression stated the feedback they received "increased their awareness about their own symptoms and motivated them to improve their mental health (i.e. by seeking treatment)" (p.466). As this was a qualitative study, the authors did not collect information based on measures and the purpose was not to influence or measure variables involved in TPB (Hom et al., 2014). However, the open-ended responses seem to indicate there was a change in perceived need and an increased intention to seek help after the personalized normative feedback intervention.

While there is some support for feedback interventions with college students, not all researchers have found evidence of their utility in increasing help-seeking intention and behavior

in all populations. Batterham et al. (2016) conducted a large-scale population study of personalized feedback found no correlation between a feedback intervention and intention to seek help for depression. However, these researchers included adults of all ages and genders and did not limit analyses to college student females. Moreover, those who were already receiving treatment were included in the study along with those who were not using treatment and no information was reported on previous diagnosis of depression. These authors did not collect information about other influential personal factors related to help-seeking intentions including attitudes, perceived norms, perceived behavioral control, and self-recognition of depression as problematic.

Therefore, more information is needed to determine whether these conclusions apply to female college students without previous diagnosis or treatment for depression. If feedback is still found to be unrelated to help-seeking intentions for this population, understanding the relationships between problem recognition, attitudes, perceived norms, perceived behavioral control and help-seeking intention may elucidate ways to adapt the intervention to be more effective.

The interventions in previous research of help seeking using attempted to influence predictor variables directly in order to change intention. These interventions had mixed success (Demyan & Anderson, 2012; Hartong, 2012). Other interventions, such as personalized feedback interventions, may influence important exogenous variables such as problem recognition to change intention to seek help (Geisner et al., 2006; Hom et al., 2014). Creating a personalized feedback intervention for those with symptoms of depression may influence problem recognition, in turn impacting salient attitudes, perceived norms, and PBC about help seeking, increasing intention to seek help.

The Proposed Study

There is research support for using the Theory of Planned Behavior to predict college students' intention to seek psychological help and attitudes and PBC seem to be the most important of the three predictor variables for this population (Bohon et al., 2016; Chen et al., 2015; Hartong, 2012). There has been some evidence to support the use of TPB to create interventions to change intention to seek help (Demyan & Anderson, 2012; Hartong, 2012). There has also been some indirect support for use of feedback interventions to increase problem recognition of symptoms of depression (Geisner et al., 2006; Hom et al., 2014). Providing personalized feedback interventions may influence intention to seek help for symptoms of depression. This intervention would target problem recognition by using personalized feedback of symptoms. Problem recognition has been hypothesized by other authors to be important in predicting intention to seek help and so increasing it may subsequently increase help seeking intention (Bonabi et al., 2016; Thomas et al., 2014; Vogel et al., 2007).

Hypotheses

Hypothesis 1: When taking into account prior counseling experiences, those with higher depression literacy will be more likely to accurately identify that they are experiencing a mental health problem (before a feedback intervention) than those with lower depression literacy (see Figure 1).

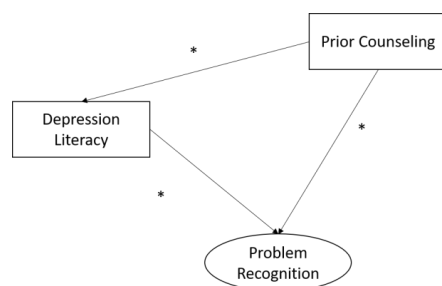


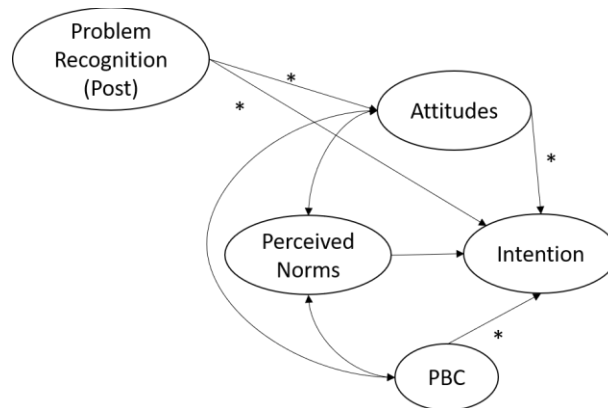
Figure 1. Hypothesized relationships between prior counseling, depression literacy, and problem recognition. * indicates a relationship hypothesized to be significant.

Hypothesis 2: After receiving personalized feedback about symptoms, participants will be more likely to endorse that they are experiencing a mental health problem than before receiving the feedback. To determine this, a comparison of scores on a problem recognition scale will be compared before and after receiving feedback.

Hypothesis 3: Attitudes toward seeing a mental health professional for counseling will mediate the relationship between problem recognition and intention to seek counseling. Specifically, those who rate problem recognition higher will be more likely to endorse positive instrumental attitudes toward seeing a mental health professional for counseling.

Hypothesis 4: Problem recognition will not be significantly correlated to norms or PBC.

See Figure 2 for a model of the relationships described in Hypotheses 3 & 4.



*Figure 2. * indicates a relationship hypothesized to be significant.*

Hypothesized model of the relationships between depression problem recognition, attitudes, perceived norms, perceived behavioral control, and intention to see a mental health profession for counseling for depression.

Literature Review References

- Bohon, L. M., Cotter, K. A., Kravitz, R. L., Cello, P. C., & Fernandez y Garcia, E. (2016). The Theory of Planned Behavior as it predicts potential intention to seek mental health services for depression among college students. *Journal of American College Health*, 64, 593–603.
- Bonabi, H., Müller, M., Ajdacic-Gross, V., Eisele, J., Rodgers, S., Seifritz, E., ... Rüschi, N. (2016). Mental health literacy, attitudes to help seeking, and perceived need as predictors of mental health service use: A longitudinal study. *Journal of Nervous and Mental Disease*, 204, 321–324.
- Chen, J. I., Romero, G. D., & Karver, M. S. (2015). The Relationship of Perceived Campus Culture to Mental Health Help-Seeking Intentions. *Journal of Counseling Psychology*, 64, 677–684.
- Demyan, A. L., & Anderson, T. (2012). Effects of a brief media intervention on expectations, attitudes, and intentions of mental health help seeking. *Journal of Counseling Psychology*, 59, 222–229.
- Eisenberg, D., Hunt, J., Speer, N., & Zivin, K. (2011). Mental health service utilization among college students in the United States. *Journal of Nervous and Mental Disease*, 199, 301–308.
- Fishbein, M., & Ajzen, I. (2010). *Predicting and Changing Behavior: The Reasoned Action Approach*. New York, NY: Psychology Press.
- Geisner, I. M., Neighbors, C., & Larimer, M. E. (2006). A Randomized Clinical Trial of a Brief, Mailed Intervention for Symptoms of Depression. *Journal of Consulting & Clinical Psychology*, 74, 393–399.
- Hartong, J. M. (2012). Help seeking and the theory of planned behavior in college students: Experiment and model testing. ProQuest Information & Learning, US.
- Hayes, J. A., McAleavey, A. A., Castonguay, L. G., & Locke, B. D. (2016). Psychotherapists' outcomes with White and racial/ethnic minority clients: First, the good news. *Journal of Counseling Psychology*, 63, 261–268.
- Hom, M., Heaney, C., & Koopman, C. (2014). Personalized normative feedback for depression symptoms: A qualitative pilot study of female undergraduates. *Academic Psychiatry*, 38, 464–469.
- Hyland, P. E., McLaughlin, C. G., Boduszek, D., & Prentice, G. R. (2012). Intentions to participate in counselling among front-line, at-risk Irish government employees: An application of the theory of planned behaviour. *British Journal of Guidance & Counselling*, 40, 279–299.
- Kenny, R., Dooley, B., & Fitzgerald, A. (2016). How psychological resources mediate and perceived social support moderates the relationship between depressive symptoms and help-seeking intentions in college students. *British Journal of Guidance & Counselling*, 44, 402–413.
- Lambert, M. J., Smart, D. W., Campbell, M. P., Hawkins, E. J., Harmon, C., & Slade, K. L. (2006). Psychotherapy Outcome, as Measured by the OQ-45, in African American, Asian/Pacific Islander, Latino/a, and Native American Clients Compared with Matched Caucasian Clients. *Journal of College Student Psychotherapy*, 20, 17–29.
- Lannin, D. G., Vogel, D. L., Brenner, R. E., & Tucker, J. R. (2015). Predicting self-esteem and intentions to seek counseling: The internalized stigma model. *The Counseling*

- Psychologist*, 43, 64–93.
- Li, W., Dorstyn, D. S., & Denson, L. A. (2014). Psychosocial correlates of college students' help-seeking intention: A meta-analysis. *Professional Psychology: Research and Practice*, 45, 163–170.
- Lipson, S. K., Gaddis, S. M., Heinze, J., Beck, K., & Eisenberg, D. (2015). Variations in student mental health and treatment utilization across US colleges and universities. *Journal of American College Health*, 63, 388–396.
- Marsh, C. N., & Wilcoxon, S. A. (2015). Underutilization of mental health services among college students: An examination of system-related barriers. *Journal of College Student Psychotherapy*, 29, 227–243.
- Minami, T., Tierney, S. C., Davies, D. R., Bettmann, J. E., McAward, S. M., Averill, L. A., ... Wampold, B. E. (2009). Preliminary Evidence on the Effectiveness of Psychological Treatments Delivered at a University Counseling Center. *Journal of Counseling Psychology*, 56, 309–320.
- Mo, P. K. H., & Mak, W. W. S. (2009). Help-seeking for mental health problems among Chinese. *Social Psychiatry & Psychiatric Epidemiology*, 44, 675–684.
- Monti, F., Tonetti, L., & Bitti, P. E. R. (2013). Effectiveness of Psychological Treatments Delivered at a Counseling Service for Students. *Psychological Reports*, 113, 955–968.
- Romano, J. L., & Netland, J. D. (2008). The application of the theory of reasoned action and planned behavior to prevention science in counseling psychology. *The Counseling Psychologist*, 36, 777–806.
- Ryan, M. L., Shochet, I. M., & Stallman, H. M. (2010). Universal online interventions might engage psychologically distressed university students who are unlikely to seek formal help. *Advances in Mental Health*, 9, 73–83.
- Schomerus, G., Matschinger, H., & Angermeyer, M. C. (2009). Attitudes that determine willingness to seek psychiatric help for depression: A representative population survey applying the Theory of Planned Behaviour. *Psychological Medicine*, 39, 1855–1865.
- Sontag-Padilla, L., Woodbridge, M. W., Mendelsohn, J., D'Amico, E. J., Osilla, K. C., Jaycox, L. H., ... Stein, B. D. (2016). Factors affecting mental health service utilization among California public college and university students. *Psychiatric Services*, 67, 890–897.
- Thomas, S. J., Caputi, P., & Wilson, C. J. (2014). Specific Attitudes Which Predict Psychology Students' Intentions to Seek Help for Psychological Distress. *Journal of Clinical Psychology*, 70, 273–282.
- Vogel, D. L., Wade, N. G., & Haake, S. (2006). Measuring the Self-Stigma Associated With Seeking Psychological Help. *Journal of Counseling Psychology*, 53, 325–337.
- Vogel, D. L., Wade, N. G., Wester, S. R., Larson, L., & Hackler, A. H. (2007). Seeking help from a mental health professional: The influence of one's social network. *Journal of Clinical Psychology*, 63, 233–245.

Appendix B: Recruitment Letter

Hello,

I am a doctoral student in the Counseling Psychology program at the at Ball State University, completing my dissertation on beliefs and attitudes about mental health and counseling. This online survey should take approximately 35-45 minutes to complete and has been approved by the Ball State University's Institutional Review Board (IRB Protocol #: 1165635-1).

You are eligible to participate in this study if you are a woman, 18 years of age or older and a current college student.

It is my hope that participating in this study would allow you to reflect on your beliefs about mental health and mental health services. I also hope that this study will improve mental health services for college students in the future by providing a better understanding of attitudes.

If you agree to participate in this study, you will be routed to an online survey consisting of several measures varying in length. Total expected completion time is approximately 35-45 minutes. Additionally, if you choose to participate, you will have an opportunity to receive one of **forty-five \$10 gift cards**. If you are a current student in an undergraduate CPSY course, your participation in this study can count toward research requirements in one course along with being your opportunity to receive a gift card. Research credit may also be available through other courses depending on the specific information given to you by your instructor.

Should you choose to participate, please click the link below to begin (alternatively, you can copy and paste the following web address into your browser):

<https://bsu-cpsy.sona-systems.com>

Feel free to forward this call to other eligible individuals.

I would like to thank you again for your time and consideration. Please direct any questions or concerns you may have to me at csdeken@bsu.edu.

Sincerely,

Craig Deken, M.A.

Appendix C: Consent to Act as a Human Research Subject

Study Title

Intentions to Seek Mental Health Services for Depression Among College Women

Study Purpose and Rationale

The purpose of this research project is better understand the relationship between mental health, personal thoughts and experiences, and help-seeking. Findings from this research may help college students to improve their mental health. It may also help researchers and helping professionals better understand the ways to help college students with mental health concerns.

Inclusion/Exclusion Criteria

To be eligible to participate in this study, you must be age 18 or above, be able to read at the third grade level, and a current college student.

Participation Procedures and Duration

For this project, you will be asked to complete a demographic survey and several questionnaires about your own experiences. Following the completion of some questionnaires, you may be given information about your responses. It will take approximately 20 minutes to complete the questionnaires.

Data Confidentiality or Anonymity

All data will be maintained as confidential and no identifying information such as names will appear in any publication or presentation of the data. If you are participating in this research as part of a requirement for course credit, your responses will not be shared with your course instructor. Your name and proof of participation in this study will be provided to your instructor only with your electronic or written consent. You may also keep the debriefing sheet and/or confirmation sheet or page as proof of your participation.

Storage of Data

Any identifying information stored as paper data will be stored in a locked filing cabinet in the research supervisor's office for three years and will then be shredded. The data will also be entered into a software program and stored on the researcher's password-protected flash drive which will be securely stored for three years and then deleted. Only members of the research team will have access to the data.

Risks or Discomforts

An anticipated risk of participating in this study is that you may experience discomfort while answering questions about your experiences, thoughts, and behaviors. You may choose not to answer any question that makes you uncomfortable and you may quit the study at any time.

Study Title

Intentions to Seek Mental Health Services for Depression Among College Women

Who to Contact Should You Experience Any Negative Effects from Participating in this Study

Should you experience any discomfort during participation in this study there are counseling services available to you through the Counseling Center at Ball State University, (765) 285-1736. You will also be presented with information about other resources for seeking help through mental health services at the end of this study.

Benefits

Some benefits you may gain from participating in this study may be better understanding of your own mental health. You may also benefit from the positive experiences which follow participating in research to better help other college students.

Compensation

Participants who choose to opt in may be entered in a drawing to win one of eight \$25 gift cards as incentive for participating in the study. If you are a Ball State CPSY student, you may receive 1 hour of research credit for a CPSY course by completing this study. There are no other incentives offered.

Voluntary Participation

Your participation in this study is completely voluntary and you are free to withdraw your permission at anytime, for any reason, without penalty or prejudice from the investigator. Please feel free to ask any questions of the investigator before signing this form and at any time during the study.

IRB Contact Information

For questions or concerns about your rights as a research subject, please contact the Director, Office of Research Integrity, Ball State University, Muncie, IN 47306, (765) 285-5070 or at irb@bsu.edu.

Study Title

Intentions to Seek Mental Health Services for Depression Among College Women

Consent

I, _____, agree to participate in this research project entitled, “Intentions to Seek Mental Health Services for Depression Among College Women.” I have had the study explained to me and my questions have been answered to my satisfaction. I have read the description of this project and give my consent to participate. I understand that I will receive a copy of this informed consent form to keep for future reference.

To the best of my knowledge, I meet the inclusion/exclusion criteria for participation (described on the previous page) in this study.

Participant’s Signature

Date

Researcher Contact Information

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Appendix D: Inclusion Question

Study Title

Intentions to Seek Mental Health Services for Depression Among College Women

Please tell us the following information:

Your gender identity: Man ____ Woman ____ Transman ____ Transwoman ____ Gender Queer
____ Other (Please Describe) ____

Appendix E: Problem Recognition Questionnaire

From Amador, Strauss, Yale, et al., 1993

1. In the most general terms, do you believe that you have a mental disorder, emotional difficulty, etc.?

I believe that I have a mental disorder.

I am unsure whether I have a mental disorder but can entertain the idea that I might.

I believe I do not have a mental disorder.

From Sturman et al., 2003

1. I am mentally well.

Agree

Unsure

Disagree

2. I am experiencing symptoms or problems associated with mood.

Agree

Unsure

Disagree

3. Some of my mood symptoms are due to how my mind or brain functions.

Agree

Unsure

Disagree

4. My mood symptoms or problems are due to a mental health disorder.

Agree

Unsure

Disagree

From Proposal

5. I believe the level of depression I am experiencing is problematic.

Agree

Unsure

Disagree

Appendix F: Depression Literacy Questionnaire (D-Lit)

The following questions are about your understanding of the symptoms of depression and the way it can be treated. Please tell me whether the statements below are true or false.

1. People with depression often speak in a rambling and disjointed way.	True	False	Don't know
2. People with depression may feel guilty when they are not at fault.	True	False	Don't know
3. Reckless and foolhardy behavior is a common sign of depression.	True	False	Don't know
4. Loss of confidence and poor self-esteem may be a symptom of depression.	True	False	Don't know
5. Not stepping on cracks in the footpath may be a sign of depression.	True	False	Don't know
6. People with depression often hear voices that are not there.	True	False	Don't know
7. Sleeping too much or too little may be a sign of depression.	True	False	Don't know
8. Eating too much or losing interest in food may be a sign of depression.	True	False	Don't know
9. Depression does not affect your memory and concentration.	True	False	Don't know
10. Having several distinct personalities may be a sign of depression.	True	False	Don't know
11. People may move more slowly or become agitated as a result of their depression.	True	False	Don't know
12. Clinical psychologists can prescribe antidepressants.	True	False	Don't know
13. Moderate depression disrupts a person's life as much as multiple sclerosis or deafness.	True	False	Don't know
14. Most people with depression need to be hospitalized.	True	False	Don't know
15. Many famous people have suffered from depression.	True	False	Don't know
16. Many treatments for depression are more effective than antidepressants.	True	False	Don't know
17. Counselling is as effective as cognitive behavioral therapy for depression.	True	False	Don't know
18. Cognitive behavioral therapy is as effective as antidepressants for mild to moderate depression.	True	False	Don't know
19. Of all the alternative and lifestyle treatments for depression, vitamins are likely to be the most helpful.	True	False	Don't know
20. People with depression should stop taking antidepressants as soon as they feel better.	True	False	Don't know
21. Antidepressants are addictive.	True	False	Don't know
22. Antidepressant medications usually work straight away.	True	False	Don't know

Griffiths, K.M., Christensen, H., Jorm, A.F., Evans, K., & Groves, C. (2004) Effect of web-based depression literacy and cognitive-behavioural therapy interventions on stigmatising attitudes to depression: Randomised controlled trial. *The British Journal of Psychiatry*, 185: 342-349

Appendix G: PHQ-8

Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at All	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things.	0	1	2	3
2. Feeling down, depressed, or hopeless.	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much.	0	1	2	3
4. Feeling tired or having little energy.	0	1	2	3
5. Poor appetite or overeating.	0	1	2	3
6. Feeling bad about yourself – or that you are a failure or have let yourself or your family down.	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television.	0	1	2	3
8. Moving or speaking so slowly that other people have noticed? Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual.	0	1	2	3

Kroenke, K., & Spitzer, R. L. (2002). The PHQ-9: A new depression diagnostic and severity measure. *Psychiatric Annals*, 32(9), 509–515. <https://doi.org/10.3928/0048-5713-20020901-06>

Appendix H: Feedback following PHQ-8 for Treatment Group Only

Your answers to the previous questionnaire suggest you fall in to the **Minimal/Mild/Moderate/Moderately Severe/Severe** range of severity for depression. This information is not meant to replace an assessment from a mental health professional or medical doctor, but may be useful in your decision to pursue mental health or medical services.

Appendix I: Follow up Depression Severity Question

Follow Up Question

The feedback you received indicated you had what level of depression symptom severity?

- ☐ No or minimal depression
- ☐ Mild depression
- ☐ Moderate depression
- ☐ Moderately severe depression
- ☐ Severe depression.

Post PHQ-8 Self-Awareness Questions

From Amador, Strauss, Yale, et al., 1993

1. In the most general terms, do you believe that you have a mental disorder, emotional difficulty, etc.?
 - I believe that I have a mental disorder.
 - I am unsure whether I have a mental disorder but can entertain the idea that I might.
 - I believe I do not have a mental disorder.

From Sturman et al., 2003

2. I am mentally well.
 - Agree
 - Unsure
 - Disagree
3. I am experiencing symptoms or problems associated with mood.
 - Agree
 - Unsure
 - Disagree
4. Some of my mood symptoms are due to how my mind or brain functions.
 - Agree
 - Unsure
 - Disagree
5. My mood symptoms or problems are due to a mental health disorder.
 - Agree
 - Unsure
 - Disagree

From Proposal

6. I believe the level of depression I am experiencing is problematic.
 - Agree
 - Unsure
 - Disagree

Appendix J: Mental Health Service Attitudes

The term mental health professional refers to individuals who have been trained to deal with mental health problems (e.g., psychologists, psychiatrists, social workers, counselors, and family physicians).

Please rate each item from 1 – 5 using the following scale.

5 = Agree 100%

4 = Agree 75%

3 = Agree 50%

2 = Agree 25%

1 = Agree 0%

1. I would want to get mental health services, if I were worried or upset for a long time. [1 2 3 4 5]
2. I would be too embarrassed to meet with others who share my difficulties, in order to tell them my problems. [1 2 3 4 5]
3. Considering the time and money needed to get counseling, it would *not* be valuable for a person like me. [1 2 3 4 5]
4. Going to a support group would be a good way to help me, if I was having emotional problems. [1 2 3 4 5]
5. A person should work out his or her own emotional difficulties without professional help. [1 2 3 4 5]
6. If I had feelings that I could not seem to deal with, I would be willing to go to counseling to help me. [1 2 3 4 5]
7. There is something strong about a person who faces his or her emotional difficulties *without* seeking professional help. [1 2 3 4 5]
8. I might want to get counseling in the future. [1 2 3 4 5]
9. Counseling is *not* a good way to put me in a good mood. [1 2 3 4 5]
10. Working with a mental health professional would be beneficial, if I were suffering from personal problems. [1 2 3 4 5]
11. If I were experiencing a serious emotional crisis, I am confident that I could find relief in counseling. [1 2 3 4 5]
12. Counseling is a good way to treat mental health problems. [1 2 3 4 5]
13. The idea of talking about problems with a mental health professional strikes me as a bad way to get better. [1 2 3 4 5]
14. Personal troubles tend to work themselves out naturally. [1 2 3 4 5]
15. If I was having emotional problems, my first thought would be to get professional help. [1 2 3 4 5]
16. When I'm feeling low, counseling can make me feel better. [1 2 3 4 5]
17. Getting psychological counseling would be a last resort to solve my problems. [1 2 3 4 5]
18. A person with an emotional problem is *not* likely to solve it, unless he or she gets professional help. [1 2 3 4 5]
19. It is not effective to go to counseling as a way to deal with mental health problems. [1 2 3 4 5]

20. Meeting with other people who are coping with the same problems as me, would be helpful if I were struggling. [1 2 3 4 5]
21. I am against going to counseling to deal with mental health issues. [1 2 3 4 5]
22. Working with a support group is a waste of time. [1 2 3 4 5]
23. There are too many negatives in going to counseling to address emotional problems. [1 2 3 4 5]
24. Going to counseling would help me deal with my troubles. [1 2 3 4 5]

Adapted from: Bohon, L. M., Cotter, K. A., Kravitz, R. L., Cello, P. C., & Fernandez y Garcia, E. (2016). The Theory of Planned Behavior as it predicts potential intention to seek mental health services for depression among college students. *Journal of American College Health*, 64(8), 593–603.

Appendix K: Attitudes Toward Seeking Professional Psychological Services Short Form

The term mental health professional refers to individuals who have been trained to deal with mental health problems (e.g., psychologists, psychiatrists, social workers, counselors, and family physicians).

Please rate each item from 1 – 5 using the following scale.

5 = Agree 100%

4 = Agree 75%

3 = Agree 50%

2 = Agree 25%

1 = Agree 0%

1. I would *not* know how to bring up the topic of depression to a mental health professional.
2. I would want to tell private information to a mental health professional.
3. I might cry or become too emotional during a visit, where I talk to a mental health professional about personal problems.
4. I would *not* want to distract a doctor from taking care of my physical health problems.
5. I feel it is a mental health professional's job to deal with emotional problems.
6. I worry that a doctor might send me to a counselor, psychologist or social worker.
7. The doctor might *not* send me to a psychiatrist.
8. I would not want to be considered a "psychiatric patient."
9. The doctor might put me on medicines that I'd rather not take.
10. My medical records might be seen by others such as an employer.
11. A mental health professional might think less of me if I brought up my depression symptoms.

Adapted from: Bohon, L. M., Cotter, K. A., Kravitz, R. L., Cello, P. C., & Fernandez y Garcia, E. (2016). The Theory of Planned Behavior as it predicts potential intention to seek mental health services for depression among college students. *Journal of American College Health*, 64(8), 593–603. <https://doi.org/10.1080/07448481.2016.1207646>

Appendix L: Attitudes About Seeking Mental Health Services

Please rate each item from 1 – 5 using the following scale.

5 = Agree 100%

4 = Agree 75%

3 = Agree 50%

2 = Agree 25%

1 = Agree 0%

The term mental health professional refers to individuals who have been trained to deal with mental health problems (e.g., psychologists, psychiatrists, social workers, counselors, and family physicians).

1. It would be extremely difficult for me to talk to a mental health professional, if I were depressed.
2. It would be valuable for me to talk to a mental health professional about depression.
3. I would actually try to talk to a mental health professional about being depressed.
4. I would be embarrassed to ask a mental health professional for help with depression.
5. I think talking to a mental health professional about depression is boring.
6. Most people who are important to me think that getting professional help for depression is not useful.
7. It would be nearly impossible for me to talk to a mental health professional about depression.
8. Many of the people with whom I am acquainted get help with their mental health issues.
9. I would find it pleasant to talk to a mental health professional about depression.
10. People would expect me to get help for mental health issues.
11. I would make an effort to talk to a mental health professional about depression.
12. Whether or not I talk to a mental health professional about depression is completely up to me.
13. I am confident that if I wanted to, I could talk to a mental health professional about depression.
14. Most people whose opinions that I value would not approve of me seeking mental health services for depression.
15. I don't intend to talk to a mental health professional for depression.
16. People would judge me negatively if they thought I was seeking mental health services for depression.
17. I would not want my employer to know I was getting professional help for depression.
18. If I were depressed, I would not plan to talk to a mental health professional.
19. I think discussing depression with a mental health professional would be worthless.
20. I believe a mental health professional would *not* be able to help me if I brought up the issue of depression.
21. A mental health professional is knowledgeable about mental health issues.
22. I don't like discussing my mental health with a mental health professional.
23. It is important for people to seek treatment for depression.

Adapted from: Bohon, L. M., Cotter, K. A., Kravitz, R. L., Cello, P. C., & Fernandez y Garcia, E. (2016). The Theory of Planned Behavior as it predicts potential intention to seek mental health services for depression among college students. *Journal of American College Health*, 64(8), 593–603.
<https://doi.org/10.1080/07448481.2016.1207646>

Appendix M: Life Circumstances

The term mental health professional refers to individuals who have been trained to deal with mental health problems (e.g., psychologists, psychiatrists, social workers, counselors, and family physicians).

Please rate each item from 1 – 5 using the following scale.

5 = Agree 100%

4 = Agree 75%

3 = Agree 50%

2 = Agree 25%

1 = Agree 0%

Transportation (getting a ride, driving, or taking the bus)

1. Transportation to a doctor's office to get medications for depression would *not* be difficult.
2. Transportation to a pharmacy to get medications for depression would be difficult.
3. Transportation to a mental health professional's office to get counseling for depression would *not* be difficult.
4. Transportation to a mental health professional's office to participate in group therapy for depression would be difficult.
5. Transportation to a gym or park to get exercise for depression would be difficult.

Scheduling

6. It would be difficult for me to schedule an appointment to see a doctor about depression medication.
7. It would *not* be difficult for me to schedule an appointment to see a mental health professional about depression counseling.
8. It would be difficult for me to schedule an appointment for a depression therapy group.
9. It would *not* be difficult for me to schedule time to exercise for depression.

Stress

10. Taking medications for depression would add another stressor to my life.
11. Seeing a mental health professional for depression would *not* add another stressor to my life.
12. Going to group therapy for depression would add another stressor to my life.
13. Exercising for depression would *not* add another stressor to my life.

Time

14. I would *not* have time to take medications for depression.
15. I would have time to see a mental health professional for depression.
16. I would *not* have time to go to group therapy for depression.
17. I would have time to exercise for depression.

Fatigue

18. Work/school would make me too tired to take medications for depression.
19. Work/school would *not* make me too tired to see a mental health professional for depression.
20. Work/school would make me too tired to go to group therapy for depression.
21. Work/school would *not* make me too tired to exercise for depression.

Scheduling Conflicts

22. My job/schooling would *not* get in the way of taking medications for depression.
23. My job/schooling would get in the way of seeing a mental health professional for depression.
24. My job/schooling would *not* get in the way of going to group therapy for depression.

25. My job/schooling would get in the way of exercising for depression.

Cost

26. I feel that medications for depression would cost too much.

27. I feel that seeing a mental health professional for depression would *not* cost too much.

28. I feel that group therapy for depression would cost too much.

29. I feel that getting exercise for depression would *not* cost too much.

30. If I needed them, I could probably afford prescription medications used to treat depression.

31. If I needed counseling for clinical depression, I could probably afford it.

Access

32. I would have a hard time finding a doctor to prescribe medications for depression.

33. I would not have a hard time finding a mental health professional to talk to about depression.

34. I would have a hard time finding a group for depression therapy.

35. I would not have a hard time finding a place to exercise for depression.

Adapted from: Bohon, L. M., Cotter, K. A., Kravitz, R. L., Cello, P. C., & Fernandez y Garcia, E. (2016). The Theory of Planned Behavior as it predicts potential intention to seek mental health services for depression among college students. *Journal of American College Health*, 64(8), 593–603.
<https://doi.org/10.1080/07448481.2016.1207646>

Appendix N: Perceived Behavioral Control Inventory

The term mental health professional refers to individuals who have been trained to deal with mental health problems (e.g., psychologists, psychiatrists, social workers, counselors, and family physicians).

Please rate each item from 1 – 5 using the following scale.

5 = Agree 100%

4 = Agree 75%

3 = Agree 50%

2 = Agree 25%

1 = Agree 0%

N/O = No Opinion

1. It would be possible to get help for depression.
2. Talking to a mental health professional about depression is practical.
3. Treatment for depression is unavailable.
4. Getting help for depression is convenient.
5. Obstacles would block my ability to seek help for depression.
6. Finding help for depression would not be a problem.
7. There are many things that would interfere with my getting help for depression.
8. It is simple to get help for depression.
9. Speaking to a mental health professional about depression would be bothersome.
10. It would be hard to be treated for depression.
11. There are not many barriers to my talking to a mental health professional about depression.
12. Talking to a mental health professional about depression would be frustrating.

Adapted from: Bohon, L. M., Cotter, K. A., Kravitz, R. L., Cello, P. C., & Fernandez y Garcia, E. (2016). The Theory of Planned Behavior as it predicts potential intention to seek mental health services for depression among college students. *Journal of American College Health*, 64(8), 593–603.
<https://doi.org/10.1080/07448481.2016.1207646>

Appendix O: Social Norms Inventory

The term mental health professional refers to individuals who have been trained to deal with mental health problems (e.g., psychologists, psychiatrists, social workers, counselors, and family physicians).

Please rate each item from 1 – 5 using the following scale.

5 = Agree 100%

4 = Agree 75%

3 = Agree 50%

2 = Agree 25%

1 = Agree 0%

1. My friends would not cooperate with me, if I chose to get help with depression.
2. I would feel low if others knew about my depression.
3. My friends would be proud of me, if I spoke to a mental health professional about my mental health.
4. Other people would not forgive me, if I got help for depression.
5. I would not feel shy talking about my depression.
6. My family would not help me to talk to a mental health professional about depression.
7. My friends would not assist me in getting outside help for depression.
8. It would be appropriate to talk to a mental health professional about mental health issues.
9. I would not feel embarrassed, if others knew that I received help from mental health services.
10. The people in my life would support me, if I sought mental health services.
11. It would be wrong to seek out mental health services.
12. Other people's opinions would stand in the way of my seeking mental health services.
13. I would not be ashamed to seek out mental health services.
14. My family would assist me in getting outside help for depression.
15. I would not be self-conscious of getting help for a mental disorder.
16. My family would cooperate with me, if I chose to get help with depression.
17. People in my life would make fun of me, if I sought help for depression.
18. If I needed them, I trust that others would support me in seeking mental health services.
19. It would be weak to seek outside help for depression.
20. Getting outside help for depression would be scandalous.
21. My friends would help me to talk to a mental health professional about depression.
22. My family would not be proud of me, if I spoke to a mental health professional about my mental health.

Adapted from: Bohon, L. M., Cotter, K. A., Kravitz, R. L., Cello, P. C., & Fernandez y Garcia, E. (2016). The Theory of Planned Behavior as it predicts potential intention to seek mental health services for depression among college students. *Journal of American College Health*, 64(8), 593–603.

Appendix P: Intention to Seek Mental Health Services

The term mental health professional refers to individuals who have been trained to deal with mental health problems (e.g., psychologists, psychiatrists, social workers, counselors, and family physicians).

Please rate each item from 1 – 5 using the following scale.

5 = Agree 100%

4 = Agree 75%

3 = Agree 50%

2 = Agree 25%

1 = Agree 0%

1. I trust that I would speak to a mental health professional about a mental disorder.
2. I would not choose to get help for depression.
3. I would never get psychological counseling.
4. I would not decide to get help from mental health professionals, if I were depressed.
5. I would seek treatment for depression even if barriers stood in my way.
6. I would not talk to a mental health professional, if I had depression.
7. I would take steps to seek out mental health professionals, if I were depressed.
8. I expect that I would not speak to a mental health professional about depression.
9. If I were depressed, I would make plans to get help from a professional.
10. I would research ways to get help for depression.
11. I would make up my mind to get treated for depression.
12. If I were depressed, I would not pursue mental health services.
13. I would act to get treatment for depression.
14. I believe that I would not speak to a mental health professional about a mental disorder.

Adapted from: Bohon, L. M., Cotter, K. A., Kravitz, R. L., Cello, P. C., & Fernandez y Garcia, E. (2016). The Theory of Planned Behavior as it predicts potential intention to seek mental health services for depression among college students. *Journal of American College Health*, 64(8), 593–603.

Appendix Q: Prior Mental Health Treatment

Are you currently participating in counseling or psychotherapy for depression?

Yes No

Have you previously participated in counseling or psychotherapy for depression?

Yes No

Are you currently participating in counseling or psychotherapy for any reason?

Yes No

Have you previously participated in counseling or psychotherapy for any reason?

Yes No

Have you ever seen a medical doctor (ie. primary care physician, psychiatrist, etc.) for mental health issues?

Yes No

Have you ever seen a medical doctor (ie. primary care physician, psychiatrist, etc.) because you were feeling depressed?

Yes No

Have you ever taken or been prescribed a medication for depression?

Yes No

Have you ever been given a mental health diagnosis by a mental health professional (ie. Counselor, therapist, psychologist, etc.)?

Yes No

Have you ever been given a mental health diagnosis by a medical doctor (ie. Counselor, therapist, psychologist)?

Yes No

Has a mental health professional (ie. Counselor, therapist, psychologist, etc.) ever told you that you were depressed or had depression?

Yes No

Has a medical doctor (ie. Primary care physician, psychiatrist, etc.) ever told you that you are depressed or have depression?

Yes No

Appendix R: Demographic Questionnaire

Study Title

Intentions to Seek Mental Health Services for Depression Among College Women

Please tell us the following information:

Your age in years: _____

Your sexual orientation: Heterosexual ____ Gay ____ Lesbian ____ Bisexual ____ Other
(Please Describe) ____

The racial and/or ethnic group with which you primarily identify:

African American

Asian or Pacific Islander _____

Caucasian _____

Latino/a or Hispanic _____

Multi-racial or Bi-Racial _____

Native American _____

Other _____ (Please describe) _____

Are you currently a college or university student? Yes No

Your current year in school:

Freshman _____ Sophomore _____ Junior _____ Senior _____

Master's Student Doctoral Student Other (Please Describe) _____

Current relationship status:

Married___ Partnered___ Dating___ Divorced___ Single___ Cohabitating___

Appendix S: Debriefing Ball State University

Study Title

Intentions to Seek Mental Health Services for Depression Among College Women

It is recommended that you save or print this page for your records.

Thank you for your participation in this study. We will be analyzing your responses from these questionnaires in aggregate form to understand relationships between depression screening and feedback, thoughts, and decisions to talk to professionals. It is our hope to contribute to the knowledge of help-seeking for those experiencing various levels of depression.

If you have any questions about the study or your participation in the study, or if you would like to withdraw your data from the study at any time, please contact the Principle Investigator or the supervisor of this project. Participants who choose to opt in for an opportunity to receive one of 45, \$10 gift cards as incentive for participating in the study by clicking the link to go to the following page. For those Ball State Students in a CPSY or other course who would like to obtain 1 hour of research credit for taking this questionnaire, please click the link to go to the following page. The principal investigator will inform your instructor, via email, that you participated. We also recommend you screenshot this page for your records and follow the instructions for obtaining credit provided by your instructor. Your name will not be associated with your responses and your instructor will not receive any information about your responses.

Should you experience emotional or psychological discomfort during your participation or after participating in this research project, you may contact the National Crisis Line at 1-800-273-8255 or the Emergency Help Line (24 Hour Resource): 765-288-HELP. You may also contact the Ball State Counseling Center at the number listed below, or find other counseling resources using the Indiana Where to Turn Directory website below.

If you have thoughts of hurting yourself or others, we urge you to seek help immediately by contacting one of the emergency help line phone numbers or 911.

IRB Contact Information

For questions or concerns about your rights as a research subject, please contact the Director, Office of Research Integrity, Ball State University, Muncie, IN 47306, (765) 285-5070 or at irb@bsu.edu.

Researcher Contact Information**Principal Investigator:**

Craig Deken, M.A., Graduate Student
605 Teacher's College
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Email: mtschopp@bsu.edu

Counseling Resources

National Crisis Line at 1-800-273-8255

Emergency Help Line (24 Hour Resource): 765-288-HELP

Ball State Counseling Center
Lucina Hall, Room 320

Where to Turn Directory
<https://wheretoturnindiana.org>

Appendix T: Debriefing Form Other Universities

Study Title

Intentions to Seek Mental Health Services for Depression Among College Women

It is recommended that you save or print this page for your records.

Thank you for your participation in this study. We will be analyzing your responses from these questionnaires in aggregate form to understand relationships between depression screening and feedback, thoughts, and decisions to talk to professionals. It is our hope to contribute to the knowledge of help-seeking for those experiencing various levels of depression.

If you have any questions about the study or your participation in the study, or if you would like to withdraw your data from the study at any time, please contact the Principle Investigator or the supervisor of this project. Participants who choose to opt in for an opportunity to receive one of 45, \$10 gift cards as incentive for participating in the study by clicking the link to go to the following page and completing the form.

Should you experience emotional or psychological discomfort during your participation or after participating in this research project, you may contact the National Crisis Line at 1-800-273-8255 or the Emergency Help Line (24 Hour Resource): 765-288-HELP. You may also find other counseling resources using the 2-1-1 website below or dialing 2-1-1 on your phone. You may also contact your university's counseling center or student health services for more information about resources available to you.

If you have thoughts of hurting yourself or others, we urge you to seek help immediately by contacting one of the emergency help line phone numbers or 911.

IRB Contact Information

For questions or concerns about your rights as a research subject, please contact the Director, Office of Research Integrity, Ball State University, Muncie, IN 47306, (765) 285-5070 or at irb@bsu.edu.

Researcher Contact Information**Principal Investigator:**

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Faculty Supervisor:

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Muncie, IN 47306
Telephone: 765-285-8040
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Counseling Resources

National Crisis Line: 1-800-273-8255

Emergency Help Line (24 Hour Resource): 765-288-HELP

2-1-1 Services Director: Dial 2-1-1 or <http://www.211.org/>

Appendix U: Obtaining Credit for Research Participation Ball State

Thank you for participating in the study “Intentions to Seek Mental Health Services for Depression Among College Women.”

Principle Researcher: Craig Deken, M.A.

If you would like an opportunity to receive a \$10 gift card and/or use your participation in this study toward a research requirement for a CPSY or other course, you may click the link below to take you to a page to enter your contact information.

If you are completing this research as a requirement for a course outside of the CPSY department, please screenshot this page and follow the instructions for obtaining credit provided by your instructor. Your name will not be associated with your responses and your instructor will not receive any information about your responses.

Appendix V: Recruitment Letter Other Universities

Hello,

I am a doctoral student in the Counseling Psychology program at the at Ball State University, completing my dissertation on beliefs and attitudes about mental health and counseling. This online survey should take approximately 35-45 minutes to complete and has been approved by the Ball State University's Institutional Review Board (IRB Protocol #: 1165635-2).

You are eligible to participate in this study if you are a woman, 18 years of age or older and a current college student.

It is my hope that participating in this study would allow you to reflect on your beliefs about mental health and mental health services. I also hope that this study will improve mental health services for college students in the future by providing a better understanding of attitudes.

If you agree to participate in this study, you will be routed to an online survey consisting of several measures varying in length. Total expected completion time is approximately 35-45 minutes. Additionally, if you choose to participate, you will have an opportunity to receive one of **forty-five \$10 gift cards**.

Should you choose to participate, please click the link below to begin (alternatively, you can copy and paste the following web address into your browser):

https://bsu.qualtrics.com/jfe/form/SV_5w4GHHbfeg5Slw1

Feel free to forward this invitation to other eligible individuals.

I would like to thank you again for your time and consideration. Please direct any questions or concerns you may have to me at csdeken@bsu.edu.

Sincerely,

Craig Deken, M.A.

Appendix W: Informed Consent Other Universities

Study Title

Intentions to Seek Mental Health Services for Depression Among College Women

Study Purpose and Rationale

The purpose of this research project is better understand the relationship between mental health, personal thoughts and experiences, and help-seeking. Findings from this research may help college students to improve their mental health. It may also help researchers and helping professionals better understand the ways to help college students with mental health concerns.

Inclusion/Exclusion Criteria

To be eligible to participate in this study, you must be a woman age 18 or above, be able to read at the third grade level, and a current college student.

Participation Procedures and Duration

For this project, you will be asked to complete a demographic survey and several questionnaires about your own experiences. Following the completion of some questionnaires, you will be given personalized information about symptoms of mental health based on your responses. It will take approximately 35-45 minutes to complete the questionnaires.

Data Confidentiality or Anonymity

All data will be maintained as confidential and no identifying information such as names will appear in any publication or presentation of the data. If you are participating in this research as part of a requirement for course credit, your responses will not be shared with your course instructor. Your name and proof of participation in this study will be provided to your instructor only with your electronic or written consent. You may also keep the debriefing sheet and/or confirmation sheet or page as proof of your participation.

Storage of Data

Any identifying information will be entered into a software program and stored on the researcher's password-protected flash drive which will be securely stored for five years and then deleted. Only members of the research team will have access to the data.

Risks or Discomforts

An anticipated risk of participating in this study is that you may experience discomfort while answering questions about your experiences, thoughts, and behaviors and from receiving feedback about mental health. You may choose not to answer any question that makes you uncomfortable and you may quit the study at any time.

Study Title

Intentions to Seek Mental Health Services for Depression Among College Women

Who to Contact Should You Experience Any Negative Effects from Participating in this Study

Should you experience any discomfort during participation in this study there are counseling services available to you through local agencies by **dialing 2-1-1** from any phone, or visiting **<http://www.211.org/>**. You will also be presented with information about other resources for seeking help through mental health services at the end of this study.

Benefits

Some benefits you may gain from participating in this study may be better understanding of your own mental health. You may also benefit from the positive experiences which follow participating in research to better help other college students.

Compensation

Participants who choose to opt in will have an opportunity to receive one of 45, \$10 gift cards as incentive for participating in the study. There are no other incentives offered.

Voluntary Participation

Your participation in this study is completely voluntary and you are free to withdraw your permission at any time, for any reason, without penalty or prejudice from the investigator. Please feel free to ask any questions of the investigator before signing this form and at any time during the study.

IRB Contact Information

For questions or concerns about your rights as a research subject, please contact the Director, Office of Research Integrity, Ball State University, Muncie, IN 47306, (765) 285-5070 or at irb@bsu.edu.

Study Title

Intentions to Seek Mental Health Services for Depression Among College Women

Consent

I, _____, agree to participate in this research project entitled, “Intentions to Seek Mental Health Services for Depression Among College Women.” I have had the study explained to me and my questions have been answered to my satisfaction. I have read the description of this project and give my consent to participate. I understand that I will receive a copy of this informed consent form to keep for future reference.

To the best of my knowledge, I meet the inclusion/exclusion criteria for participation (described on the previous page) in this study.

Participant’s Signature

Date

Researcher Contact Information

Principal Investigator:
Craig Deken, M.A., Graduate Student
605 Teacher’s College
Department of Counseling Psychology,
Social Psychology, and Counseling
Ball State University
Muncie, IN 47306
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Faculty Supervisor:
Dr. Molly Tschopp
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Social Psychology, and Counseling
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Muncie, IN 47306
Telephone: 765-285-8040
Email: mtschopp@bsu.edu

Appendix X: Obtaining Credit for Research Participation Ball State

Thank you for participating in the study “Intentions to Seek Mental Health Services for Depression Among College Women.”

Principle Researcher: Craig Deken, M.A.

If you would like an opportunity to receive a \$10 gift card and/or use your participation in this study toward a research requirement for a CPSY or other course, you may click the link below to take you to a page to enter your contact information.

If you are completing this research as a requirement for a course outside of the CPSY department, please screenshot this page and follow the instructions for obtaining credit provided by your instructor. Your name will not be associated with your responses and your instructor will not receive any information about your responses.

Appendix Y: Obtaining Credit for Research Participation

Thank you for participating in the study “Intentions to Seek Mental Health Services for Depression Among College Women.”

Principle Researcher: Craig Deken, M.A.

If you would like an opportunity to receive a \$10 gift card, you may click the link below to take you to a page to enter your contact information.

Appendix Z: Pilot Study

Procedures

The purpose of the pilot study was to test the validity and reliability of (a) the Problem Recognition Questionnaire, which has not been used previously and (b) all the measures that were modified to reflect help-seeking specifically for depression. In the pilot study, an error was made in administration and only 7 of the 8 TPB measures were administered at random to each participant. As such, not every participant in the pilot study completed every measure. The scales were randomly assigned to each participant based on computer algorithm and there was no systematic missingness based on user characteristics. Every participant did complete the Problem Recognition Questionnaire because it was administered prior to the error which caused random assignment of the TPB questionnaires.

Recruitment. Participants were recruited via email to introductory health science classes and through an undergraduate research pool. All recruitment requests included information about the study, a link to an informed consent page for the study, which was administered through Qualtrics, and the contact information of the principle investigator. Participant names and contact information were collected for consent through a separate Qualtrics survey and when they entered their name and clicked to consent to the study, they were automatically redirected to the study surveys. This process kept their names separate from their responses to the survey questionnaires. Because of the way this survey was administered, people were not able to access the main study questionnaires before seeing the informed consent information.

After completing the pilot study questionnaires, participants were redirected to a third separate Qualtrics page. On this page, those who chose to opt in were eligible for an opportunity to receive one of forty-five \$10 gift cards as incentive for participating in the study. Students in one department at one university were also able to receive one hour of research credit as an

additional incentive to complete the online survey. Students from this department had the opportunity to receive credit and a gift card if they entered their name and email address, and instructor's name and email address. The incentive contact information was collected through a separate Qualtrics survey which did not link their responses to their responses from the main study.

Missing data. Two-way mean imputation (Sijtsma & van der Ark, 2003; Van Ginkel, Andries Van der Ark, Sijtsma, & Vermunt, 2007) was used to calculate missing values if participants answered at least 85% of a scale and if the item was answered by at least 85% of participants. The data from participants who did not answer at least 85% of items on a scale were not included in the reliability analyses. See Table 2a for scale means, standard deviations, and internal consistency reliability analyses results of each measure.

Demographic information

Pilot study participant demographic information is found in Table 1a below. Most participants in the final analyses identified as Caucasian (83%), single (56%) or dating (36%), and heterosexual (87%). There were more junior and senior participants than those in freshman or sophomore years. Analyses based on demographic characteristics were not conducted because there were not enough participants from varying racial, sexual orientation, or relationship statuses to compare the groups.

Results

The purpose of the pilot study was to test the validity and reliability of the Problem Recognition Questionnaire, which has not been used previously and the measures from the TPB studies by Bohon et al. (2016) which were modified to only include items which pertained to the seeking counseling for depression and not other help-seeking behaviors. Every scale was not

administered to every participant and so between scale correlations could not be calculated.

Scales had α values which ranged from .58 (AASMHS-PBC) to .91 (LC Full and ISMHS).

Though some of the reliability scores for the pilot study were below desirable cutoffs, they had been previously validated by Bohon et al., (2016) and in the current study, may have been impacted by small sample sizes. The Problem Recognition Questionnaire, which had no prior research support, had a good α reliability, providing support for using it in the main study. Based on the prior research and the current findings, the scales were used in the main study.

Table 1a. *Pilot Study Demographics*

<u>Race/Ethnicity</u>	<u>N</u>	<u>(%)</u>	<u>Year in School</u>	<u>n</u>	<u>(%)</u>
Caucasian	85	83	Freshman	11	11
Hispanic/Latina	2	2	Sophomore	19	19
Multiracial/Biracial	3	3	Junior	35	34
American Indian	2	2	Senior	37	36
Asian	0	0			
Black/African American	10	10	<u>Marital Status</u>	<u>n</u>	<u>(%)</u>
			Married	1	1
<u>Sexual Orientation</u>	<u>N</u>	<u>(%)</u>	Partnered	2	2
Bisexual	5	5	Divorced	0	0
Heterosexual	89	87	Single	57	56
Lesbian	2	2	Dating	37	36
Other (asexual, demipansexual, demisexual, pansexual, queer)	3	3	Cohabiting	5	5
Prefer not to say	0	0			
Gay	3	3			

Table 2a. Pilot Study - Scale means and standard deviations

	N	M	SD	Cronbach's α
AASMHS-ATT Full	88	31.97	5.86	0.78
MHSA Full	85	84.07	13.36	0.86
MHSA Revised	85	40.74	7.04	0.77
ATSPPHS Full	75	32.027	6.81	0.75
ATSPPHS Revised	75	28.35	6.11	0.74
AASMHS-PBC	86	11.87	2.39	0.58
LC Full	80	123.36	21.85	0.91
LC Revised	80	26.81	6.03	0.78
PBCI	85	44.44	7.85	0.85
AASMHS-SN	88	25.08	5.10	0.65
SN	84	88.92	16.34	0.94
AASMHS-INT	83	14.83	3.45	0.66
ISMHS	85	56.18	10.21	0.91
Prob-Rec	102	10.55	3.60	0.85